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American Railroad Journal.

Saturday, July 24, 1852.

Exhibit of the Alabama and Tennessee River Railroad Company.

The Alabama and Tennessee River railroad company was incorporated by the Legislature of the State of Alabama, March 4th, 1848, and was organized in October, 1849.

The charter authorizes the company to construct a railroad from the Alabama river, at the city of Selma, to the Tennessee and Coosa railroad, extending from the town of Gadsden, on the Coosa river, to Guntersville, on the Tennessee river. A subsequent act of the Alabama Legislature authorizes the Tennessee and Coosa railroad company to be incorporated with the Alabama and Tennessee River railroad company. Thus the entire route from the Alabama to the Tennessee river, is to be under one company and under one direction.

The charter is perpetual. It confers authority to hold, purchase, lease, sell and convey, real, personal and mixed property, so far as shall be necessary for the purposes of the incorporation; also, it requires stockholders to pay the instalments called on their respective shares of stock; and upon failure, or refusal of any stockholder to pay the instalment, the company may sell the stock, on thirty days' notice; and if the stock should be sold for less than the amount due, judgment may be obtained against the defaulting stockholder for such deficiency, which judgment shall be a lien on the real and personal property of the stockholder, and execution shall issue as upon other judgments.

The company is also authorized to contract and receive conveyances of land, stone, timber, etc. required for the road, and in case of disagreement with the owners, to condemn the same—the jury taking into consideration the advantages and disadvantages which the property will sustain by the construction of the road.

The company may also lay and collect tolls from all persons, property, merchandize, and other commodities transported over their road; but the net profits of the company shall never exceed twenty-five per cent. per annum.

The President and directors, or a majority of them, are empowered to borrow money, to issue certificates or other evidences of such loan, and to pledge the property of the company for the payment of the same, with interest.

Authority is also given by an act, amendatory to the charter of the Alabama and Tennessee River railroad company, approved February 10th, 1852, to increase, from time to time, the capital stock of the company to such an amount as the board of directors may deem necessary to cary into full effect the object and purposes of the company.

It also confers full and additional powers to enforce the payment of instalments on stock, and to the procurement of right of Way, Depot Grounds, etc.

And further, in regard to the powers of the board of directors, the amended charter contains the following section:

SEC. 6. *Be it further enacted.* That to remove all doubts which may exist as to the powers of the board of directors of said company, the said board of directors shall be, and they are hereby fully authorized and empowered to issue bonds in the name of and on the faith and credit of said company, in such form, and payable in such time, and bearing such rate of interest [not exceeding eight per cent. per annum] payable annually or semi-annually, as the board of directors may prescribe. And the said board of directors shall also have full power and authority to negotiate, pledge, hypothecate or sell the promissory notes, or bonds, or obligations of any persons, or any other body corporate, or of which said board of directors may have control; and to secure the payment of any bond or bonds, or other obligation of said company, or the interest thereon, or to secure the fulfilment of any contract or duty, or obligation of said company, full power and authority are hereby given to the board of directors of said company to pledge in such form as the board of directors may think proper, by resolution or mortgage, or deed of trust or otherwise, all the means, property and effects of said company, or any part thereof, including subscriptions to the capital stock of the company; and any pledge so made by said board of directors, whether by resolution or mortgage, or deeds of trust, or other form of contract, shall be valid and effectual to all intents and purposes. All duties required by this act, or the act to which this is an amendment, to be performed by a Sheriff, may be performed by the deputy of such Sheriff.

APPROVED, February 10th, 1852.

DESCRIPTION OF THE ROUTE.

The Alabama and Tennessee River railroad commences at Selma, on the Alabama river, and passes through the counties of Dallas, Perry and Bibb, to the town of Montevallo, Shelby county; thence through Shelby, Talladega and Benton counties, by way of Talladega town and Jacksonville, to the Coosa river, at or near the town of Gadsden, a distance of 167½ miles. Here it connects with the proposed Tennessee and Coosa railroad, forty-one-and-a half miles in length, which, however, may be considered as an extension of the Alabama and Tennessee River railroad to the Tennessee river, as it is the intention of the two companies to unite together, under the name of the Alabama and Tennessee River railroad, the right to do so having been granted by the Legislature of Alabama, as before stated.

Accurate and detailed surveys have been made, and the entire line has been located. These surveys demonstrate that the route is well adapted for a railroad economical in its first cost, and effective by its easy grades and curves.

The maximum grade going south, the direction in which the heavy freight is to be transported, from the Tennessee to the Alabama river, 209 miles, is only forty feet per mile, and shortest radius of curvature 1432½ feet, except near the Tennessee river, where a curve of 1146 feet radius occurs.

Between Gadsden, on the Coosa river, and Selma, the maximum grade going north is 53.33-100 feet; and between the Tennessee and Coosa rivers, the maximum grade going north is 80 feet per mile, for a short distance.

Excellent materials for construction—such as timber, stone and gravel—abound generally along the whole line.

PROGRESS OF CONSTRUCTION.

About 120 miles of the road are under contract for grading, to be completed in May, 1853. Seventy miles are graded. The iron rails for fifty-six miles have been purchased, the greater portion delivered, and the balance on their way. The track is laid the distance of 25 miles, and is now daily operated upon with a train conveying freight and passsengers. The work of laying the track is proceeding at the rate of one and one-quarter miles per week. It is confidently expected that the road will be completed and in operation to Montevallo, (55½ miles,) where the trade of the extensive iron and coal region of Alabama can be rendered available to the road, by next December. Up to this date the expenditures in the construction of the road amount to about $400,000.

The railroad is in the course of construction in the most substantial manner, and in all respects as a first-class railroad, with a heavy T rail [60 lbs. per yard] laid on cross ties two feet apart, from center to center. The superstructure of the bridges (Howe's patent) over the large streams is supported by piers and abutments of stone masonry. The grading and drainage of the road are executed in a thorough manner; and all the materials used in construction, as well as the equipments, are of the most approved quality and description.

RIGHT OF WAY.

The right of way, one hundred feet wide, has been given to the company for nearly the whole length of the road; and lands for depots and stations have also been secured, in all cases as yet, without charge to the company.

ESTIMATE OF THE PROBABLE COST.

The Engineer's estimate of the entire cost of a first class railroad, with a heavy T rail, (60 lbs. per yard,) including a full equipment of depots, stations, motive power, etc. is, from Selma to Gadsden, (167.69 miles,) as follows:—

Graduation, masonry and bridging	$1,015,735
Superstructure, including turn-outs and side tracks	1,207,411
Road crossings, cattle guards, road signs and fencing	50,309
Agencies, engineering, etc. etc.	117,388
Depot grounds, engine and station houses and water tanks, right of way, etc	132,157
Motive power, cars, engines, etc.	253 500
	$2,776,500

or an average of $16,557 per mile.

In this estimate the sum of about $400,000 is for materials and work required to perfect the road after it is in running order, and is expected to be derived from the earnings of the road. The amount, deducted from the estimate, will make the amount necessary to put the road in operation for business equal to $2,376,500.*

WAYS AND MEANS, AND SECURITY FOR LOANS.

To defray the above estimate of expenses, the company have obtained private subscriptions to stock on the road, including stock agreed to be taken by planters and others on the road who have taken contracts	$866,984
Private subscriptions from the citizens of Mobile	170,000
State of Alabama subscription from the 2 and 3 per cent. fund †	178,016
City of Selma corporate subscription	85,000
Present means	$1,300.000
To be raised by additional subscriptions	576,500
Do. do. by a loan on bonds	500,000
	$2,376,500

To obtain this loan of $500,000, the company propose to issue their bonds. These bonds are to be secured by a mortgage, [the first and only lien,] upon the whole length of the road; also upon the materials and the equipments purchased with the proceeds of the bonds, and upon the private subscription to the capital stock of the company, and upon all its rights, franchises and privileges.

From the known ability of the country traversed by this route, the great success which has attended the efforts to obtain stock from individuals, and the lively interest which the people cherish for the project, the directors entertain no doubt of their ability to increase the stock subscriptions to the amount named; and with this conviction they have limited, at present, the amount to be borrowed to $500,000, which is about $3,000 per mile, a sum much less than the cost of the iron for the road.

But should the contingency arise by which the company may want a larger loan for the completion or equipment of their road, the sum specified in the mortgage is to be $838,450, or $5,000 per mile; and bonds are to be issued for that amount, and placed in the hands of the trustees; but with the agreement and understanding, that bonds for the sum of $500,000 only, are to be issued until at least one hundred miles of the road are in actual operation; the balance to be issued only for the payment of the rails and equipments for the remainder of the road.

The bonds will be in sums of $1,000 and $500, bearing interest at seven per cent. per annum,—principal payable in twenty years, and interest semi-annually, in the city of New York.

They will be convertible into stock of the company, at the option of the holder, at any time before maturity.

It will be noticed as a remarkable fact in the present era of railroad construction, that all the subscriptions to the capital stock of this company, with the exception of about $263,000 subscribed by the State of Alabama and the city of Selma, are by individuals, a large majority of whom live along, or near the line of the road. There is scarcely a farmer or planter along or near the road, who has not taken stock, and who is not directly interested, not only in the construction of the road, but in its success after it is in operation. Many of them are able and willing, at the proper time, to materially increase their subscription.

DESCRIPTION OF THE COUNTRY TRIBUTARY AND ADJACENT TO THE RAILROAD.

Geological Character.—From Selma, to within ten miles of Montevallo, the road passes over the Cretaceous formation, characterized by sand, gravel and clay deposits. Thence it passes into the Carboniferous and Silurian formations, through which important formations it continues to the Tennessee river, running, however, on the east side of the Coosa river from two to ten miles of the Metamorphic system of rocks in Talladega and Benton counties.

The Carboniferous, Silurian and Metamorphic system of rocks in Alabama, intersected by and adjacent to the Alabama and Tennessee River railroad, are exceedingly rich in their useful ores and minerals.

There are three extensive coal fields in Alabama, in striking distance of the railroad, viz: the "Tuskaloosa coal field," lying in the valleys of the Warrior river and its tributaries; the "Cahaba coal field," occupying the valleys of the Cahaba river and its tributaries, and also the valleys of Broken Arrow creek and its branches; and the "Sand Mountain coal field," occupying the highlands on the south side of the Tennessee river. All these coal fields are convenient and accessible to the road, particularly those on the Cahaba river and Broken Arrow creek, and on Sand Mountain.

The Cahaba coal measures will be opened to a market by the railroad next December, when it is completed to Montevallo. Partial explorations have been made of the coal seams lying within a mile of the road, near Montevallo, and while the coal has proved to be excellent in quality, it has also been ascertained that it exists in great abundance, and that it can be profitably worked. The seams vary from three to eight feet thick. Seven workable seams have been opened on the Cahaba river, and have been fairly tested, both as to quality, facility and convenience for mining. The Cahaba coal field occupies an area of about 540 square square miles. Assuming the tons of coal to each acre at 4,000, which is less than the average as developed by the mining operations on the southwestern edge of this field, and deducting three-fourths for unproductive areas, and for areas covered by rocks, which would prevent mining operations, and also for erosions of strata, and there would be the enormous quantity of 345,600,000 tons of workable coal in this field.

On the northern end of the road, between Gadsden and Guntersville, the extension of the road passes over beds of coal lying nearly horizontal.—This coal has all the appearance of being of good quality; the thickness of the seams has not yet been ascertained.

The present demand for coal on the Alabama river and at Mobile is estimated, at a low figure, at	65,000 tons.
That in the ports of the Gulf of Mexico and the West Indies, according to Taylor's "Statistics of coal"	200,000 tons.
Total present annual demand	265,000 tons.

The proximity of the Cahaba coal field to these places of consumption, and the economy, facility and certainty with which the coal can be transported to the markets of the Alabama river and of the Gulf of Mexico, by the Alabama and Tennessee River railroad and the river, will cause a large proportion of the above estimate of consumption to be transported over the railroad.

In close proximity to the coal field are immense beds of rich hematite iron ore. The Cahaba coal field is almost surrounded by iron ore, while in the Silurian system of Shelby, Bibb, Talledaga, Benton, Cherokee and DeKalb counties of Alabama, near the line of railroad, there are also numerous and very extensive beds of this valuable ore.

Notwithstanding the want of access to market, costing from $8 to $9 per ton to transport the iron to a navigable river, the ore is now profitably worked.

Many varieties of limestone over which the road passes for upwards of 100 miles yield an excellent quality of quicklime. When it is considered that South Alabama, Eastern Mississippi and South Louisiana are now almost entirely supplied with lime from the New England States and Pennsylvania, causing a demand of upwards of 200,000 casks per annum, there can be no doubt that the transportation of lime will also become a source of great profit to the road.

The Silurian and Carboniferous limestones traversed by the road also furnish marble of excellent quality and beautifully variegated colors, such as blue, grey, jet black, buff and dove colors.

The Metamorphic rocks of Talledaga county, from four to nine miles of the road, are remarkable for extensive beds of pure white crystalline marble, some of it equal in texture, and susceptible of as fine polish as the Italian marble. The finest specimen of white marble in the Washington Monument is from a quarry near the road.

Agricultural Character—The counties of Dallas and Perry, on the southern part of the road, are very productive. Those of Bibb, Jefferson, Shelby and St. Clair are not so much so in an agricultural point of view, but have resources which more than compensate for the difference in this respect. These counties are, however, intersected by numerous valleys of red lands, which yield abundantly, and they are capable of sustaining a much more numerous population than any portion of the State. The pursuits of the population are at present chiefly agricultural; and while the lands will not compare in fertility with other counties on the road—for instance, Dallas, Talladega, Benton, Cherokee and DeKalb—yet an examination of their agricultural productions, as exhibited in the census of 1850, indicates a productiveness of soil unusual in districts abounding in coal, iron, etc. Judging from the effects of railroads upon similar countries elsewhere, there can be no doubt that, in a few years after this part of Alabama is opened to a market by the railroad, it will become the most wealthy and populous, and, from its contiguity to cotton and provision producing sections, the most independent part of the south-western States. The health of this country is undoubted.

After leaving the coal and iron districts the road passes through the fertile and thickly inhabited counties of Talladega, Benton and Cherokee.—These counties are settled by a numerous, industrious and intelligent people. The soil is well adapted to the cultivation of cotton, wheat and corn. The country is very healthy. It is also well watered—abounding in streams, affording ample water power for manufactures; and, in fact, it combines all the elements for sustaining a dense industrial and manufacturing population.

From the Coosa to the Tennessee river the highlands are generally poor; but the valleys are fertile, and are thickly settled by small farmers.

The mountain table lands of this section afford extensive ranges for cattle and sheep. Crossing these highlands the extension of the road terminates in the Tennessee valley, one of the richest and most densely settled agricultural districts in the south-west.

There are in Alabama twenty-two counties tributary to the Alabama and Tennessee River railroad and its extension, viz: Benton, Bibb, Blount, Cherokee, Dallas, DeKalb, Jackson, Jefferson, Lawrence, Limestone, Marshall, Madison, Morgan, Randolph, Shelby, St. Clair, Talladega, Tus-

* The road between Selma and Montevallo, 55¼ miles, will be completed by next December, at a less cost, as now determined by actual contracts, than the engineer's estimate of this part of the road. Should the price of iron not increase, the same favorable difference in the cost of the remainder of the road may be reasonably anticipated.

† This amount may be increased to $250,000 or $300,000; depending on the settlement which the State of Alabama will have with the general Government in relation to this fund.

kaloosa and part of Autauga, Coosa and Perry counties.

The following statement exhibits the population and productions of agriculture, etc. of these counties according to the seventh census (1850) of the United States, and other authorities.

Population	270,102
Acres of land in improved farms	1,639,493
" " unimproved farms	2,965,502
Cash value of farms	$24,050,427
Value of farming implements and machinery	$1,942,516
Number of Horses, Asses and Mules	74,276
" of Cattle	240 213
" of Sheep	143,267
" of Swine	745,987
Value of live stock	$7,622,160
Bushels of wheat produced per annum.	800,000
" Indian Corn " "	11,531,567
Bushels of Oats	1,229,758
Lbs. of Rice	229,695
" Tobacco	136,806
Number of (400 lb.) bales of ginned cotton	216,685
" lbs. of wool	262,296
" bushels of peas and beans	364,772
" " Irish potatoes	126,978
" " Sweet potatoes	1,240,997
" lbs. of butter	1,367,975
" " Beeswax and Honey	312,190
Value of home made manufactures	$867,228
" Animals slaughtered	1,695,967

The greater part of this important and valuable agricultural country depends on wagons over common earth roads for the transportation of its productions and supplies. The planters on the west side of the Coosa river haul their cotton from fifty to ninety miles to Selma or Tuskaloosa, or float it down the water courses in high freshets. Those on the east side of the river also send it down the river in freshets, or haul it to Wetumpka from 50 to 80 miles, and in some cases they haul it to the Georgia roads, from 80 to 120 miles, by which it is conveyed to the south Atlantic ports; while in the Tennessee valley, the surplus productions are either transported down stream by the Tennessee, Ohio, and Mississippi rivers to New Orleans, a distance of from 1500 to 1700 miles, or up stream to Chattannooga, and thence by railroads about 450 miles to Charleston and Savannah.

Such is an imperfect sketch of the country which is to supply the Alabama and Tennessee river railroad with its *local business*. When the vast extent of this rich country, its already developed great agricultural productions, its immense and comparatively untouched mineral resources are considered in connexion with the fact, that the greater part of this region is deprived of access to market, except by tedious and expensive wagon and flat-boat transportation, it must be admitted that a railroad penetrating such a country, in the natural direction and course of trade, cannot fail to receive an amount of *local business* which will render it profitable in the highest degree.

The *foreign or through business* on the Alabama and Tennessee river railroad will, from its admirable location and connections be also immense.

The Alabama and Tennessee river railroad forms a link in the great chain of railways now constructing on the shortest, most expeditious and attractive line for travel between the north-eastern states and the Gulf of Mexico; and it is also a part of another great system of railways connecting a large portion of the most populous western states on the most desirable route with the gulf.

The great National trunk line of railroad, north east, and south-west, commencing at Portland, in the state of Maine, passes through Boston, New York, Philadelphia and Washington. Up to this point the communication by railway is complete. At Alexandria, nearly opposite Washington, on the south bank of the Potomac, commences the Orange and Alexandria railroad, now in operation and extending 90 miles to Gordonsville, on the Central Virginia railroad. Thence to Charlottesville the Virginia central railroad forms a part of the Grand Trunk for 18 miles; thence to Lynchburgh (65 miles) is the only portion of this great national line the means for which are not provided. But from the important relation which this link bears to the great chain, no doubts are expressed but that it will be soon commenced. Until, however, this link is secured, this part of of the great chain will be supplied by the following roads, viz: the Richmond, Fredericksburgh and Potomac railroad; the Richmond and Danville railroad, now completed to the junction with the South Side railroad at "Burkes," and the South Side railroad which is now on the eve of opening from "Burkes," to Lynchburg—so that from Portland to Lynchburg the whole of this great line may be set down as in operation. From Lynchburg the Virginia and Tennessee railroad carries this great line forward 205 miles to the northwestern boundary of Tennessee, most, if not the entire line of which is under contract, and about 50 miles in operation. To provide the means for this link, the state of Virginia, is a subscriber to its stock in proportion to three-fifths of the full cost of the road, and the work is being pushed forward under very able management to its completion.

The portion of the *Grand Trunk line in Tennessee* is made of two links—the first composed of the *East Tennessee and Virginia railroad*, extending to Knoxville, about 130 miles—nearly the whole of which is under contract. Towards this line, the state of Tennesse has appropriated $1,040,000. for the purchase of iron and equipments. The state has also made an additional appropriation of $303,000 for bridges. The above sums, with the private means already secured place the early construction of this road beyond doubt. The second link, from Knoxville to Dalton, Georgia, is made up of the *East Tennessee and Georgia railroad*, which is already in operation from Dalton to Loudon, on the Tennessee river, a distance of about 80 miles, and 30 from Knoxville; which last section is in rapid progress with abundant means.

From Dalton to the Alabama and Tennessee river railroad, there are several lines projected and chartered, and means are now raising to build them. One of these lines extends from Dalton to Gadsden, and the other from Rome, Georgia, on the line of Georgia railroads, to Jacksonville.

From thence to Selma, the grand national line is continued by the Alabama and Tennessee river railroad. On reaching Selma the grand trunk line forms a connection with the navigable waters of the Gulf of Mexico, by the Alabama river, which runs in a direction nearly coinciding with that of the whole line, and which at present will sufficiently accommodate the business and travel moving towards the Gulf, concentrating at the above point. But it is proposed to construct a railroad on the east side of the Alabama river to Mobile, crossing the river at a convenient point above Mobile. A charter for this road has been obtained. The importance of this road will at once be appreciated, and there can be little doubt that it will be completed at no distant day. This road, however, forms no part of the Alabama and Tennessee river railroad scheme.

The main chain of railroads will, however be continued to Mobile and New Orleans, by other lines of roads, the means for which are nearly all provided, though the route is somewhat more circuitous than the one already described. These roads are, first, the Alabama and Mississippi railroad, leading from Selma to a junction with the Southern railroad at the dividing line between Alabama and Mississippi. The means for constructing this road from Selma to Uniontown, about 30 miles, are obtained, the surveys have been made and the road is to be immediately placed under contract for this distance. Measures are in progress which, it is believed, will secure sufficient means to extend the road from Uniontown to the state line, a distance of about 60 miles—a large portion of the country through which it will pass being the richest section in the south.

Second; the southern railroad, extending from the state line to Jackson, and Vicksburg, Mississippi. This road is in operation from Vicksburg east, to Brandon, a distance of 60 miles, and measures are in progress to secure the balance of the road to the Alabama line. About 15 miles west of the Alabama line, the southern railroad intersects the Mobile and Ohio railroad, which is now in operation 33 miles to Citronelle, and means provided for its construction to a point beyond its junction with the southern railroad. A large portion of this part of the Mobile and Ohio railroad is under contract. The line for seventy miles north of the junction will be under contract by the August next, and the work is progressing rapidly to the Ohio river, under very efficient and successful management.

At Jackson a communication with New Orleans will be effected by the New Orleans and Jackson railroad, which is to be immediately placed under contract, and towards which the city of New Orleans has recently subscribed $2,000,000.

By inspecting the accompanying map, prepared for general circulation under the direction of the accomplished editor of the American railroad Journal, H. V. Poor, Esq., the directness of this *Grand National Trunk Line*, from Portland, Maine, to the Gulf of Mexico, will be noticed as one of its distinguishing characteristics. It has favorable grades and curves for its whole length, and the railroads composing it are designed to be first class railroads, and are constructing at a moderate cost per mile. From Portland to Lynchburg it has a uniform gauge of 4 feet 8½ inches, and from Lynchburg to the Gulf 5 feet; thus permitting produce and merchandize to be transmitted between Lynchburg and the Gulf of Mexico without change of cars. As a great national line of road it combines, in an extraordinary degree, all the conveniences and attractions of a route adapted both to the business and pleasure traveller. From Portland to the city of Washington the line follows the general inclination of the coast, passing through all the great cities. Leaving Washington, the route still pursuing the same course, in almost an exact direction towards Mobile, enters and follows until it reaches the interior of Alabama, the valleys between the lofty parallel ranges of the great Appalachian chain. As far as grandeur and variety of scenery, salubrity of climate, capacity for high speeds, and shortness of line between the two extremes of the country, the commercial cities of the north and those of the south, are concerned, this route must forever stand unrivalled.

The second Grand International line of which the Alabama and Tennessee river railroad will form the southern trunk, is the line connecting the Great lakes on the one hand with the Gulf of Mexico on the other.

From the lakes there are several lines of railroads already constructed, extending to Cincinnati. From Cincinnati to Danville, Kentucky, a distance of 128 miles, the line is under contract, with ample means for its completion. From Danville to the Tennessee state line, about 120 miles, the company is organized and active measures are in progress to raise the means necessary for this link. For that portion of the line through Tennessee, the state has appropriated $8,000 per mile, which, with the private means of the companies already organized, will secure its construction at an early day. A portion of the line extending from Winchester, on the Nashville and Chattannooga railroad to Guntersville, at the northern terminus of the Alabama and Tennessee river road is under contract.

The Alabama and Tennessee railroad will also be connected with lake Michigan and the northwest by the following lines of railroads, viz: First the Winchester and Alabama railroad already referred to. Second, the Nashville and Chattannooga railroad, now in operation from Winchester to Nashville. Third, the Louisville and Nashville railroad, the means for which are already provided (the city of Louisville having taken $1,000,000 stock in the same). Fourth, the several lines which make up the through line from Louisville to Chicago, composed of the Jeffersonville railroad, now completed to its junction with the Madison and Indianapolis railroad, the northern part of the Madison and Indianapolis railroad; the Lafayette and Indianapolis railroad, which is to be opened in September next; and that portion of the New Albany and Salem railroad extending from Lafayette to the south shore of lake Michigan, (where it connects with two roads running to Chicago,) and which will be completed by the 1st day of July, 1853. Until the Louisville and Nashville portion of this line is completed, the route will be supplied by the Cumberland and Ohio rivers. It may also be stated that by the 1st of January next, the cities of Louisville and Cincinnati, will be connected by railroads.

An inspection of the map hereto annexed will show the location of the routes described, and will illustrate the important position of the Alabama and Tennessee river railroad, in being the *Grand Trunk Line* of two immense systems of railways, extending from the farthest limits of the Union to the Gulf of Mexico.

The following table of comparative distances will further illustrate the important position of the Alabama and Tennessee river railroad—

Table of Comparative Distances.—1st, in relation to the through travel, north-east and south-west. Washington city will be taken as the point of comparison—it being a point common to all routes.

Washington city to Mobile via Richmond, Wilmington, Manchester, Atlanta, West Point, Montgomery and Alabama river—464 miles steamboat and 947 miles railroad	1,411 miles.
Washington city to Mobile via Alexandria, Lynchburg, Rome, *Alabama and Tennessee River Railroad*, and Alabama river	1,190 "
Difference nearer by Alabama and Tennessee river railroad, in time 14 hours, and in distance	221 miles.
Washington city to Mobile via Alexandria, Lynchburgh, Dalton, Atlanta, Montgomery and Alabama river.	1,310 miles.
Washington city to Mobile via Alexandria, Lynchburg, Knoxville, Dalton, direct line to Alabama and Tennessee river railroad, Selma and Alabama river	1,147 "
Difference nearer via Alabama and Tennessee river railroad	163 miles.

And as regards the shortest line which can ever be obtained to compete with the Alabama and Tennessee river railroad, the comparison of distances will be as follows—

Washington city to Mobile via Alexandria, Lynchburgh, Dalton, Atlanta, Montgomery and proposed line to Mobile	1,071 miles,
Washington city to Mobile via Alexandria, Dalton, Alabama and Tennessee river railroad, Selma, proposed line to Montgomery and Mobile, and thence by that road to Mobile	1,021 "
Difference nearer by Alabama and Tennessee river railroad	50 miles.

2nd, As to the comparative distances by the different routes from the Gulf ports to an interior point of the south-west—for instance Knoxville, Tennessee.

New Orleans to Knoxville, Tennessee, via Gulf of Mexico, Charleston and Georgia and South Carolina railroads	1,741 miles.
New Orleans to Knoxville via Mobile Alabama river and Alabama and Tennessee railroad	751 "
Difference nearer via Alabama and Tennessee railroad	990 miles.
Galveston to Knoxville via Charleston, etc	2,122 miles.
Galveston to Knoxville via Mobile, Alabama and Tennessee river railroad etc	1,120 "
Difference nearer via Alabama and Tennessee river railroad	1,002 miles.
Isthmus of Tehuantepec to Knoxville via Charleston, etc	2,182 miles.
Isthmus of Tehuantepec to Knoxville via Mobile etc	1,638 "
Difference nearer via Alabama and Tennessee river railroad	544 "
Isthmus of Panama to Knoxville via Charleston, etc	2,497 miles.
Isthmus of Panama to Knoxville via Mobile, etc	2,198 "
Difference nearer via Alabama and Tennessee river railroad	299 miles,

From these comparisons of distances, and an inspection of the accompanying map, the following general conclusions are drawn:

1st, That for all the territory, including the British Provinces, north of a line drawn from Richmond, Virginia, to Rome, Georgia, and thence to Selma, Alabama, and east of a line drawn from Selma to the eastern boundary of lake Michigan, the most expeditious route to the Gulf of Mexico is presented by the Alabama and Tennessee river railroad.

And, 2nd, That north-western Georgia, east and part of middle Tennessee, western North Carolina, and south-western Virginia, comprising a population of of over 700,000, can be supplied with southern groceries, in exchange for their produce, in less distance, time and cost, over the Alabama and Tennessee river railroad, than over any other. This saving in distance and time, together with the superior advantage of the Gulf market for the purchase of southern groceries, will have the effect of directing to this road a large proportion of the business of this vast inland region. In this connexion it should also be considered that the cotton and sugar producing Gulf states now afford the best market for the products of the corn and wheat growing and stock raising sections of Tennessee and Kentucky.

ESTIMATE OF BUSINESS INCOME AND PROFIT.

The estimates will be confined to that part of the railroad between Selma and Gadsden.

DOWN FREIGHT.

There are now produced about 75,000 bales of cotton in Perry, Autaga, Dallas, Bibb, Shelby, Jefferson, St. Clair. Blount, Tuscaloosa, Marshall, DeKalb, Cherokee, Benton, Talladega and Randolph counties. All these counties are adjacent to or are intersected by the railroad, and will, of necessity, transport their produce over this railroad. Estimating however, that 10 per cent of this cotton seeks market by other channels, and there will be 67,500 bales at an average of $1,10—$74,250.

There are now over 5000 tons of iron made on and near the line of the road, and new works are springing up. The present production, however is only considered; this at $2,60 per ton—$13,000.

From the great and constantly increasing demand for coal, the present demand being 260,000 tons per annum, and the facility and economy with which it can be mined and transported to a navigable river by the railroad, as shown in a former part of this exhibit, it is fair to presume that at least 60,000 tons per annum will be conveyed on this road, which at an average of $1,30, would be $78,000.

As before stated, South Alabama, east Mississippi and south Louisiana are now supplied with lime from New England and Pennsylvania. The lime thus consumed and imported from abroad is estimated at $200,000 casks per annum. Inexhaustible quantities of limestone yielding excellent quick lime, are found along the road from 40 to 100 miles from the Alabama river, and as fuel is very cheap, there can be no doubt that an active commerce in this useful article will spring up immediately on the road. Estimating only one fourth of the demand, 50,000 casks, as that quantity which will be at an early day transported over the road, and the income from this source, at 30 cents per cask will be $15,000.

Of lumber, cord wood, building stone, brick etc. etc. The amount transported must be very large, from the fact, that the country about Selma, and the fertile prairies west of that city must obtain its building materials from the region travelled by the road. To be moderate, the number of tons of these materials transported is assumed to be 25,000 per annum.

Flour, Corn, etc.—It is estimated in the patent office report, of 1847, that the deficiency in the supply of wheat in the states of Alabama, Mississippi, and Louisiana amounts to 3,700,000 bushels, or about 672,000 bbls of flour, while the excess of supply in the state of Tennessee alone is stated at 5,900,000 bushels, or about 1,000,000 bbls. of flour, much the greater part of which is produced in the counties accessible to the northern part of this road.

In Alabama the demand for flour exists in the cotton counties surrounding the southern terminus of the road, while the counties on its northern end produce large quantities of flour for export. Such being the nature of the supply and demand it is believed that at least 60,000 bbls, not one-tenth of the present demand, will be conveyed on the road.

The price of corn in the Tennessee valley is from 14 to 25 cents per bushel; in South Alabama it is from 50 to 80 cents. This great difference in the price will cause a large quantity of corn to be transported over the road—at least 60,000 bushels per annum.

Transportation of Stock.—Experience has demonstrated that the saving alone in the condition of horses, mules and cattle will justify the payment of 25 per cent more for transporting them on railroads than by driving; and that hogs, still more troublesome and relatively more expensive to drive can be transported as cheap as rolling freight, and by transporting them alive there is also saved the carriage of 100 lbs of barrel and brine to each hog; this saving is estimated at fifty per cent. In connexion with these facts it should be stated that the principal markets for the horses, mules, cattle and hogs of the stock raising districts of Tennessee and Kentucky are the cotton-growing sections of South Alabama, Mississippi, and Louisiana, and that the common roads of the country near the line of this railroad, and running south in the same direction, are now the great thoroughfares for stock driving, by which it is estimated from 100 to 150 000 hogs, and a vast number of horses, mules and cattle are annually driven south.

Considering these facts, it is believed that at least 60,000 hogs and sheep, 6,000 cattle, and 5,000 horses and mules, is a low estimate of the number, which will be sent on this railroad to a southern market, instead of being driven over the rough, rocky and muddy roads which characterize the country traversed by the railroad.

Miscellaneous Down Freight, such as bacon, pork, cotton bagging and rope, may be estimated to yield $10,000.

UP FREIGHT.

The *Up Freight* will consist of sugar, coffee, salt, molasses, foreign imports, etc.

The experience of the freighting business on the Alabama river shows that the up freight on that river, consisting principally of light merchandise and groceries, yields more revenue than the down freight, for the reason that although the tonnage is not so great, yet the articles being more valuable than the productions of the country in proportion to weight and bulk, will bear higher rates of charges for transportation; and being generally lighter, they can be transported at a less cost to the carrier. When it is considered that the up freight on the Alabama river supplies a population following the same pursuits and having the same wants as that dependent on this railroad, it is fair to presume that the *up freight* on the railroad will bear the same proportion to the *down freight*, as it does on the Alabama river.

The following statement made from data obtained from several of the most experienced steamboat captains on the Alabama river, shows the average amount of up freight, which is principally groceries on that river.

168 trips of steamboats per annum, averaging 1,500 bbls. per trip	252,000 bbls.
96 trips per annum, averaging 1,000 bbls. per trip	96,000
Total per annum	348,000 bbls.

This amount of up freight, which is considered by well informed persons rather under than over the true quantity, supplies a population not one-half so great as that tributary and accessible to the Alabama and Tennessee river railroad. To be moderate, however, it is assumed that the railroad, as soon as it is in operation, will transport at least one-third more up freight than is now conveyed on the Alabama river. This would give 464,000 bbls. as the amount of up freight, which, at an average of 30 cents per bbl. would give $139,200 as the income from this source—not quite half that which is estimated to be derived from the down freight on the railroad.

That the income from up freight on this road will be very large, is also evident when it is con-

sidered that the comparative table of differences previously given, clearly shows that this railroad presents the shortest and consequenty the cheapest means of communication between a vast extent of territory in Alabama, Tennessee, Georgia, North Carolina and Virginia, comprising a population of over 700,000, and the sugar lands of Louisiana and Texas and the tropical regions of the Gulf of Mexico. In this connection it should not be lost sight of, that the grocery market of the gulf ports is much more favorable to the purchaser than that of the south Atlantic ports.

It will also be borne in mind that the great mass of southern labor is directed to the production of one staple article—cotton—the whole of which has to be exported beyond the limits of the State. This implies not only an exportation of the whole surplus products of the country, but an importation of nearly every article that enters into domestic consumption. The volume of the business, therefore, thrown upon this road must be nearly, if not quite, equal to double the amount of domestic production.

Travel.—The comparative table of distances further indicates the great importance of this railroad as a thoroughfare for travel.

The way travel, for the present, will be supplied by a local population of about 200,000, of which about 129,000 are white people—a large proportion of whom have the means to travel. Estimating that one-third of the white population will travel on the road, which is the experience of the railroads in the new States, as the first or second years' business, the local travel will be 43,000 each way, carried on an average say 60 miles, which, at three cents per mile, is $154,800.

The through travel on this railroad will be supplied by a population of over 700,000, north and northeast of its northern terminus, which can trade with the Gulf of Mexico in less distance and time over this road than over any other; by the 300,000 south and southwest of its southern terminus; and when the railroads connecting with it shall have been completed, by the millions of the northern, middle and western States. The travel which will be thus afforded is beyond present calculation, and more than enough to satisfy all the roads yet projected to the Gulf of Mexico. Not considering the future travel, (to be supplied by roads not yet completed,) but that which will be at once done upon the road through interest, it is reasonable to calculate upon thirty through passengers each way daily, equal to 10,950 each way, per annum—which, at $5, (about three cents per mile) will be $109,500 per annum.

Independent of the very important advantage which the road has for commanding travel, by being the southern trunk of two great national thro' lines, its admirable location, through a healthy and picturesque country, running nearly north and south in the direction and natural current of travel—permitting the citizen of the north to escape, in a few hours, by a safe and pleasant conveyance, from the rigors of a northern winter to the delightful climate of the gulf, and in the summer allowing the southerner to enjoy the mountain air of north Alabama, Georgia, Tennessee, North Carolina and Virginia, will attract to it immense travel.

With all the difficulties, delays and dangers attending the present mode of travel, the number of persons passing north and south by the Mississippi river, by the ocean steamers from New Orleans, and by the mail route through Georgia and the Carolinas, does not fall short of 500,000 per annum. While a fair proportion of this travel will pass over the Alabama and Tennessee River railroad, a great increase of it may be safely calculated upon, when the grand trunk lines of which this road composes the southern base, shall have been completed.

A vast increase of the local travel may also be counted upon from the growth of population in the rich mining and agricultural districts traversed by the road.

In proportion as facilities for travel are created, in the same proportion is travel augmented. In Massachusetts, more than eight times the local population are annually carried on railroads; in New Hampshire and Connecticut the proportion is as 4 to 1, and in New York as 2 to 1; and the average number of passengers on railroads to each inhabitant in all the New England States and New York is 3·28.

RECAPITULATION OF THE FOREGOING DATA,

Showing an estimate of the probable business, income and profit of the Alabama and Tennessee railroad, based upon the present population and resources of the country tributary to the road:

DOWN FREIGHT.

67,500 bales of cotton, at an average of 1·10.	$74,250
5,000 tons of iron at 2·60 per ton	13,000
60,000 tons of coal at 1·30 per ton	78,000
50,000 casks of lime, at 30 cents	15,000
25,000 tons of lumber, cordwood, building stone, marble, etc., at 1·50 per ton.	37,500
60,000 bbls. of flour, at 30 cents	18 000
60,000 bush. corn and other grain, at 10 cts.	6,000
60,000 hogs and sheep, at 80 cents	48,000
6,000 cattle, at 2·50	15,000
5,000 horses and mules, at 3·50	17,500
Miscellaneous freight	10,000
	$332 250
UP FREIGHT	139,200
13,000 way passengers, each way at $1·80.	154,800
10,950 through " " " 5·00.	109 500
Transportation U. S. mail	33,000
Gross receipts	$768,750
Deduct expenses of repairs, running the road and depreciation, 50 per cent.	384,375
Net income	$384,375

Or 13 8-10 per cent on $2,776,500, the estimated cost of the railroad.

EXPENSES.

The expenses on this road, including depreciation, have been assumed at 50 per cent of its receipts. The average proportion of expenses to receipts on thirteen of the leading railroads in the United States for 1850 was 51·4 per cent; while on the Georgia railroad the proportion of expenses to receipts was, for 1850, 36·4 per cent.

On the Alabama and Tennessee River railroad, the articles which compose its local freight are of such a nature that the trains can be so graduated as to run, well filled, throughout the year. When there is not cotton and other productions of the soil to be transported, the down trains can always be well loaded, at different places along the line, with coal, iron, lime, marble, building and mill stones, lumber, etc. The up trains will also have fair loads of groceries, merchandise, etc.

The fact of always being able to run full trains regularly throughout the year will have an important bearing on the economical operations of this road. It is an advantage which few roads have. On the railroads of Georgia and South Carolina, the export freight consists of agricultural productions, the transportation of which, from their nature, must necessarily be crowded into a few months of the year. Nothwithstanding, these railroads pay, probably, better than any in the United States, owing to their moderate first cost, and also to the small cost of repairs and running expenses, arising from the absence of frost and the cheapness of fuel.

If the practical results in operating railroads are examined, it will be noticed that all railroads having full average loads regularly throughout the year, although they may have steep gradients, yet transport at a less expense per ton, and realise greater profits, than other roads which do not have full equal and constant loads. For instance, the Western railroad of Massachusetts, with maximum grade of 83 feet per mile, and an average load of 52½ tons per train, transports freight at a cost of 1·56 cents per ton per mile, while on the Northern railroad of New York, with much lighter grades and easier curves, and average loads of 11½ tons per train, the cost of transport amounts to 3·97 cts. per ton per mile. The Baltimore and Ohio railroad, with grades of 85 feet per mile, delivers coal at a charge of 1½ cts. per ton per mile. The Reading railroad, with trains always fully loaded one way and empty the other, transports coal at an expense of 5 mills per ton per mile, and at a charge of 1·50 cents per ton per mile.

Considering, then, that the Alabama and Tennessee River railroad passes through a country where the frost will have little or no effect upon the road bed, and where fuel, (long leaf yellow pine and bituminous coal) is abundant and cheap; that it can always have fair average loads in both directions; and that it is in the course of construction in a permanent manner at once, at a very moderate first cost, there can be no doubt that its cost of maintenance and its running expenses will be as low as on any of the roads in the United States, and that its result as a good investment for capital will be highly satisfactory.

One of the best evidences of a profitable traffic on the Alabama and Tennessee River railroad will be found in the experience of the operations of the railroads in Georgia.

The following table will show the cost, receipts and dividends of the three leading Georgia railroads, for the year 1851:

	Cost.	Receipts.	Div.
Central	$3,500,000	$748,207	8 per ct.
Georgia	4,000,000	728,923	7
Macon and Western.	1,018,500	208,666	10

The above rates of dividends have been paid regularly for yeas past, leaving a large surplus to each, as a reserved fund. They are properly regarded as among the most successful railroads in the United States, and the stocks of each are in demand, at a handsome premium.

Now the Alabama and Tennessee river railroad cannot fail to pay as well, if not better than the Georgia railroads, briefly, for the following reasons:-

1st. At least three-fourths of the country traversed by the road is good farming land, and where the land is poor, it abounds in coal, iron, limestone, marble, and other useful ores and minerals. The land, both in an agricultural and mineral point of view, is far superior to the country traversed by the Georgia railroads, and the population per square mile is as great. *The local business, therefore*, of the road must be as great, if not greater, than that of the Georgia railroads.

2nd. There is no comparison between the roads as regards their location for *through business.* An inspection of the map and a consideration of the tendency of trade and travel will prove this.

It has equally as great advantage from the absence of frost, and from the cheapness of fuel; and it can be as cheaply built, and better equipped, from the fact that constant improvements are daily making in railroad equipments.

The road will be in operation to Montevallo 55½ miles, next December, at a cost of from $720,000 to $750,000, (depending on the amount of equipment placed on it,) and will commence to yield from 7 to 8 per cent, on its cost as soon as it is in operation. The road completed to this point *only*, will render it morally certain, that the interest of the proposed loan will be punctually paid. And should the loan be obtained, there can be no doubt that the whole line will be completed to Gadsden, 167½ miles early in 1854; most of the grading of the heavy work, from Montevello to Gadsden, being under contract and in an advanced stage of progress and is to be completed in May, 1853. The balance of the grading of the road is generally light, and can be finished rapidly.

That the road will yield as much as has been stated in a previous part of this exhibit, no one acquainted with the subject will deny. The very liberal subscriptions made by the people along the line of the road, who possess the best means of forming a correct opinion as to its probable business, is the best evidence of the soundness of the project. While other companies are considered entitled to borrow money at fair rates, upon a stock subscription equal to one half of the cost of the road, the Alabama and Tennessee company offer as security more than two dollars for every one which they seek to borrow.

LEWIS TROOST,
Chief Engineer and Agent.

NEW YORK, June 28, 1852.

Marine Railroad Across the Ohio.

The Louisville Journal says that a project is in contemplation for the construction of a marine railroad across the Ohio river at that point, to connect Jeffersonville and Louisville. The plan is entirely practicable, and Mr. Hoskins, of New Orleans, together with other men of means, are at the head of the project.

Ericsson's Caloric Engine.

The July number of the Merchants' Magazine contains an elaborate notice of this invention of Capt. Ericsson's, which is soon to be tested on an elaborate scale. A portion of which we give below. The object sought to be found is of incalculable importance. The theory of the matter is correct, but whether Capt. Ericsson has achieved the practical result remains to be seen.

The following is the description referred to.

The engine, (which is now in progress for the steamship) has four cylinders. Two, of seventy-two inches in diameter, stand side by side. Over each of these is placed one much smaller. Within these are pistons, exactly fitting their respective cylinders, and so connected that those within the lower and upper cylinders move together. Under the bottom of each of the lower cylinders a fire is applied. No other furnaces are employed. Neither boilers nor water are used. The lower is called the working cylinder; the upper the supply cylinder. As the piston in the supply cylinder moves down, valves placed in its top open, and it becomes filled with cold air. As the piston rises within it, these valves close, and the air within, unable to escape as it came, passes through another set of valves, into a receiver, from whence it is to pass into the working cylinder, to force up the working piston within it. As it leaves the receiver to perform this duty, it passes through what is called the regenerator, which we shall soon explain, where it becomes heated to about four hundred and fifty degrees, and upon entering the working cylinder, it is further heated by the fire underneath. We have said the working cylinder is much larger in diameter than the supply cylinder. Let us, for the sake of illustration merely, suppose it to contain double the area. The cold air which entered the upper cylinder will, therefore, but half fill the lower one. In the course of its passage to the latter, however, we have said that it passes through a regenerator, and let us suppose, that as it enters the working cylinder, it has become heated to about four hundred and eighty degrees. At this temperature, atmospheric air expands to double its volume. The same atmospheric air, therefore, which was contained within the supply cylinder, is now capable of filling one of twice its size. With this enlarged capacity, it enters the working cylinder.

We will further suppose the area of the piston within this cylinder to contain a thousand square inches, and the area of the piston in the supply cylinder above, to contain but five hundred. The air presses upon this with a mean force, we will suppose, of about eleven pounds to each square inch; or in other words, with a weight of 5,500 pounds. Upon the surface of the lower piston, the heated air is, however, pressing upwards with a like force upon each of its one thousand square inches; or in other words, with a force of 11,000 pounds. Here, then, is a force which, after overcoming the weight above, leaves a surplus of 5,500 pounds, if we make no allowanee for friction.—This surplus furnishes the working power of the engine. It will be readily seen that after one stroke of its piston is made, it will continue to work with this force, so long as sufficient heat is supplied to expand the air in the working cylinder to the extent stated; for so long as the area of the lower piston is greater than that of the upper, and a like pressure is upon every square inch of each, so long will the greater piston push forward the smaller, as a two-pound weight upon one end of a balance will be quite sure to bear down one pound placed upon the other. We need hardly say that after the air in the working cylinder has forced up the piston within it, a valve opens, and as it passes out, the piston by force of gravity, descends, and cold air again rushes into, and fills the supply cylinder, as we have before described. In this manner the two cylinders are alternately supplied and discharged, causing the pistons in each to play up and down, substantially as they do in the steam-engine.

We trust our readers will be able, from the brief description we have here attempted, to understand at least the general principles upon which this machine operates. Its cylinders draw their supply from the atmosphere. The cylinders of the steam-engine are supplied by scalding vapor, drawn from hissing boilers. The caloric engine draws into its iron lungs, the same element which expands those of the most delicate child, and derives its motion and its power from that sustaining source upon which depends the existence of all animate life.

We have endeavored to explain the construction of the caloric engine. Its most striking feature consists in what is called by its inventor, the regenerator. Before describing this, we will present the grand idea upon which it is based. First let it be remembered that the power of the steam-engine depends upon the heat employed to produce steam within its boilers. It will be seen that from the very nature of steam the heat required to produce it, amounting to about 1,2000°, is entirely lost by condensation the moment it has once exerted its force upon the piston. If, instead of being so lost, all the heat used in creating the steam employed could, at the moment of condensation, be reconveyed to the furnace, there again to aid in producing steam in the boilers, but a very little fuel would be necessary; none, in fact, except just enough to supply the heat lost by radiation. The reason is obvious. Let us suppose the steam has passed from the boiler, has entered the cylinder, has driven the piston forward, and is about to pass into the condenser, there to change its form, and be again converted into water. This steam, yet in the cylinder, and uncondensed, possesses all the heat it contained before passing out of the boiler. It has driven the piston forward, but in that effort it has lost no heat. That source of power it still contains.

Let it be supposed that the heat contained in the steam could, at the moment it is converted into water within the condenser, be saved, and by some device be again used to create steam from water within the boiler, with what exceeding cheapness could the power of the steam engine be employed. But it is quite impossible thus to re-employ the heat of steam: it cannot thus be saved; and hence every effort to economize in this manner would be unavailing.

The propositions we have here advanced were, it appears, more than twenty-five years since familiar to the scientific mind of Captain Ericsson. He was at that early period deeply impressed with their importance; and regarding heat as the sole source of motive-power, was anxious to discover some element in which it could be so employed that, after giving motion to machinery, it should be returned to act over and over again for the same purpose. But little reflection was necessary to convince him that steam was not this element. It must consist of some permanent gas, and atmospheric air seemed admirably adapted to the purpose. Accordingly it was employed by him.

In a work entitled "A Dictionary of the Arts of Life and Civilization," published in London in 1833, the author, Sir Richard Philips, mentions an engine which Captain Ericsson then had in operation in that city, as "his application of excited or rarefied air to the performance of those powers of machinery, which hitherto have been made to depend on the intervention of boiling water and its steam." The author further states that he "has, with inexpressible delight, seen the first model machine, of five horse power, at work. With a handful of fuel applied to the very sensible medium of atmospheric air, and a most ingenious disposition of its differential powers, he beheld a resulting action, in narrow compass, capable of extension to as great forces as ever can be wielded or used by man."

The author adds:—"The principle of this new engine consists in this: that the heat which is required to give motion to the engine at the commencement, is returned by a peculiar process of transfer, and thereby made to act over and over again, instead of being, as in the steam engine, thrown into a condenser, or into the atmospheric, as so much waste fuel."

During the last nineteen years, Captain Ericsson has employed much of his time, and expended large amounts of money, in overcoming those practical difficulties which are ever stumbling blocks in the way leading to the successful development of a great principle in new machinery. This he has now achieved. The principle of this invention, as stated by Sir Richard Phillips, is still retained, embodied in that practical and complete form, which render this engine economical, absolutely safe, durable, simple in construction, and in action effective.

Let us now attempt to describe the regenerator, to which we have referred. Without this, the machine we examined would possess, in point of economy, no advantage over the best constructed steam engine. With it, the advantages are incalculable. We have already fully illustrated the leading idea conceived by Capt. Ericsson, of employing heat over and over again. To attain this is the object of the regenerator.

For the purpose of understanding this instrument our readers will bear in mind the construction and operation of the machine. We have before stated that atmospheric air is first drawn into the supply cylinder, from whence it is forced into a receiver, and that from this it proceeds towards the working cylinder, before reaching which it passes through the regenerator. This structure is composed of wire net, somewhat like that used in the manufacture of sieves, placed side by side, until the series attain a thickness, say of twelve inches. Through the almost innumerable cells, formed by the intersection of these wires, the air must pass, on its way to the working cylinder. In passing through these, it is so minutely subdivided that the particles composing it are brought into close contact with the metal which forms the wires. Now let us suppose, what actually takes place, that the side of the regenerator nearest the working cylinder is heated to a high temperature. Through this heated substance the air must pass before entering the cylinder, and in effecting this passage, it takes up, as is demonstrated by the thermometer, about 450° of the 480° of heat required, as we before stated, to double its volume. The additional 30° are communicated by the fire beneath the cylinder. The air has thus become expanded; it forces the piston upward; it has done its work—valves open—and the imprisoned air, heated to 480°, passes from the cylinder, and again enters the regenerator, through which it must pass before leaving the machine.—We have said that the side of this instrument nearest the working cylinder is hot, and it should be here stated that the other side is kept cool, by the action upon it of the air entering in the opposite direction at each up-stroke of the piston. Consequently, as the air from the working cylinder passes out, the wires absorb its heat so effectually that, when it leaves the regenerator, it has been robbed of it all, except about 30°. In other words, as the air passes into the working cylinder it gradually receives from the regenerator about 450° of heat; and as it passes out, this is returned to the wires, and is thus used over and over, the only purpose of the fires beneath the cylinders being to supply the 30° of heat we have mentioned, and that which is lost by radiation and expansion. Extraordinary as this statement may seem, it is nevertheless incontrovertibly proved by the thermometer to be quite true.

When physical causes, productive of unexpected mechanical results, are carefully examined, they will always be found adequate to effect what, upon a cursory view might appear marvellous or incredible. Thus, after an examination of the reasons why this compact regenerator so effectually absorbs and transmits heat, its operation will cease to create wonder, although it cannot fail to excite profound admiration. We will state the causes of its efficiency.

The regenerator, contained in the sixty horse engine we have examined, measures twenty-six inches in height and width internally. Each disc of wire composing it contains 676 superficial inches, and the net has ten meshes to the inch. Each superficial inch, therefore, contains 100 meshes, which, multiplied by 676, give 67,600 meshes in each disc, and as 200 discs are employed, it follows that the regenerator contains 13,520,000 meshes, and consequently, as there are as many small spaces between the discs as there are meshes, we find that the air within is distributed in about 27,000,000 minute cells. Hence, it is evident, that nearly every particle of the whole volume of air, in passing through the regenerator, is brought into very close contact with a surface of metal, which heats and cools alternately. The extent of this surface, when accurately estimated, almost surpasses belief.

The wire contained in each disc is 1,140 ft. long, and that contained in the regenerator is consequently 228,000 feet, or 41¼ miles in length, the superficial measurement of which is equal to the entire surface of four steam boilers, each forty feet long, and four feet in diameter; and yet the regenerator, presenting this great amount of heating surface, is only about two feet cube—less than 1-1920 of the bulk of these four boilers.

Involved in this wonderful process, of the transfer and retransfer of heat is a discovery, which justly ranks as one of the most remarkable ever made in physical science. Its author, Captain Ericsson long since ascertained, and upon this is based the sublimest feature of his caloric engine, that atmospheric air and other permanent gasses, in passing through a distance of only six inches, in the fiftieth part of a second of time, are capable of acquiring, or parting with, upward of four hundred degrees of heat. He has been first to discover this marvelous property of caloric, without which, atmospheric air could not be effectively employed as a motive power. The reason is obvious. Until expanded by heat, it can exert no force upon the piston. If much time were required to effect this, the movement of the piston would necessarily be so slow as to render the machine inefficient. Capt. Ericsson has demonstrated, however, that heat may be communicated to, and expansion effected in, atmospheric air, with almost electric speed; and that it is, therefore, eminently adapted to give the greatest desirable rapidity of motion to all kinds of machinery.

We here close our imperfect description of a machine destined, as we believe, to work a revolution in the Commerce of the globe. It consumes but a very small proportion of the coal required for the steam engine. It is entirely free from every element of explosion or of danger. Watchfulness is not imperatively required, as in the steam engine. If left unattended, the worst that can happen is, that after exhausting the heat of its fires, and of its regenerator, it will stop. The one we examined, of sixty horse-power, has been run at full speed during twenty-four consecutive hours, consuming but nine hundred and sixty pounds of coal. After feeding the fires, it continues to run three hours without replenishment, and after withdrawing them from the grates, it operates with full power for the period of one hour, in consequence of the astonishing action of its regenerator alone. We believe we have not, in the slightest degree, overrated the immense advantages of this engine, in point of economy and safety. If we have not, the world may well start with exultation. In magnitude of results, no invention can rank with it. The electric telegraph is one of great interest and value, and to him who reflects that the fierce lightning has by that process been tamed, and brought to the very lips of man, there to be freighted with human language, and sent abroad, to girdle the earth with thought, it becomes sublime. Still, it is greatly inferior, in practical importance, to the discovery of a motive power such as we have attempted to describe.—Human speculation fails adequately to estimate its influence upon the social and commercial relations of men and of nations. Its effects will naturally be first exerted upon the ocean. It is here that the value of such a power will be most sensibly felt and appreciated. Here it will soon become the strong arm and right hand of commerce. It may be affirmed with confidence that, with engines upon this plan, a ship of two thousand tons can be propelled from San Francisco to China and back with less coal than is now required for an ordinary ocean steamer to cross the Atlantic.

The annals of the mechanic arts furnish no instance of an important invention having been brought before the public in so complete a form as to warrant its being carried out on a scale of the first magnitude from the outset. Ericsson's Caloric Engine will form an exception. A ship is now building for its reception by Messrs. Perrine, Patterson, and Stack, measuring twenty-two hundred tons burden, and her engines, which are being constructed by Messrs. Hogg & Delamater, comprise four working cylinders, each of 168 inches in diameter. We have visited both the ship-yard and the engine manufactory, and have inspected with more than ordinary interest the work on which more than four hundred men are now busily engaged. The ship is quite a remarkable structure, both in point of form and strength. The engines being placed in the center of the vessel admit of a better form of midship section than in steamships. Of this the builders have availed themselves by giving such a rise to the floor that strength and easy lines for passing through the water are appropriately combined. The lines of the ship at the entrance are singularly fine; and yet, by a very judicious application of the "wave line," as it is technically called, the bow possesses all the fullness requisite for a good sea-boat. The run is alike peculiar for easy lines, combined with stability and requisite bearing. The strength of floor, which is built entirely solid from stern to stern, surpasses anything we have seen in this country, noted as it is for producing the best ships in the world. In order to give additional strength to the ample timbers, the entire frame is banded by a double series of diagonal braces, of flat bars of iron, let into the timbers at intervals of about three feet, each series being riveted together at all the points of intersection. In addition to the ordinary central keelsons, there are six engine keelsons, bolted on the top of the floor timbers, for three-fourths of the length of the ship. On these keelsons the bed plates of the engines are secured by bolts passing through the floor timbers. These bed-plates extend over the entire area occupied by the engines, and present a continuation of iron flooring, not witnessed in any steamship. The security thus attained is further enhanced by dispensing entirely with the numerous holes through the bottom of the vessel, which in steamers are necessary, and have often brought that class of vessels to a sinking condition. The engines being arranged in the center of the vessel, the decks are not cut off as in steamers; and as the whole of the machinery is confined within a vertical trunk 76 feet long and 18 feet wide, ample space is left on each side of the ship for state-rooms along its entire length, with unbroken passages, fore and aft, on either side. The freight-deck also presents an unbroken area fore and aft, diminished only in width in the central part of the vessel. The coal being carried in the bottom, at each side of the engines, the fore and aft hold are clear for freight.—The central arrangement of the engines involves, of necessity, a *central* crank, and thus the spar-deck presents an uninterrupted area, on both sides, the ordinary objectionable crank hatches being dispensed with. The slow combustion peculiar to the caloric engine renders the huge smoke funnel unnecessary. A short pipe to carry off the gases produced by the combustion in the furnaces takes its place in the caloric ship. The absence of steam in every form is sufficiently important in producing a more pleasant atmosphere than in steamers, but far more remarkable is the fact that the quantity of air which will be drawn out of the ship by the action of the supply cylinders of the engines, will exceed *sixty tons in weight* every hour! Capt. Ericsson, in calling our attention to this fact, furnished us with a few figures that we feel certain our readers will need, as much as we did, to comprehend how so vast a ventillation is effected. Each supply piston presents an area of 102 superficial feet, with a stroke of six feet. 612 cubic feet of atmospheric air will therefore be drawn into the engine at each stroke; and when the engine makes fourteen strokes per minute, 8,568 cubic feet. But as there are four supply cylinders, they will, in this space of time, draw in 34,272 cubic feet; and in 60 minutes there will be thus circulated 2,056,320 cubic feet. The weight of atmospheric air is nearly 13½ cubic feet to the pound; and thus it will be seen that 68 tons of air are drawn from the interior of the ship, through the engines, and passed off into the atmosphere, every hour. The effect of such an extraordinary system of ventillation, in purifying the atmosphere of the ship, is self-evident.

The simple construction of the caloric engine, and the small quantity of coal to be handled, will reduce the number of engineers and firemen, in the aggregate, to less than one-fourth the complement required for steamers. This great reduction in the number of men, whose duties are incompatible with strict cleanliness, will still further promote a purer state of atmosphere in caloric ships than in steamers. Again, as no smoke whatever is produced, when anthracite coal is employed, the masts and rigging of the caloric ship will be as clean as in sailing vessels. We examined the combustion of the sixty horse caloric engine most critically. No smoke could be detected from it, and we arrived at the conclusion, that with such a slow combustion and easy firing, smoke cannot possibly emanate from the anthracite consumed in the furnaces.—Europe has scarcely any of this fuel, and in a national point of view, therefore, the introduction of the caloric engine is important. We congratulate the commercial world that this invention is to be presented upon a scale and in a manner commensurate with its surpassing magnitude. The commercial part of this enterprise is conducted by Mr. John B. Kitching, a merchant of the city of New York, who has, for this purpose, associated with him a few gentlemen of wealth and high standing. It is fortunate that he possesses the practical intelligence which has enabled him to appreciate the advantages to be derived from the introduction of this new motive power. He at once concurred with Captain Ericsson, that its development in practice should so thoroughly test its utility and value, that no doubt could thereafter be entertained concerning either. So far as human scrutiny and foresight can penetrate, this invention promises to be the richest boon to commerce and civilization yet attained by the application to machinery of those natural forces created by Omnipotence for the benefit of our race. Upon the manner of its first introduction to the world, will, in a great degree depend the time within which it will be made generally available in practice. Mr. Kitching will be remembered as the man whose sound judgment and perfect self-reliance have so contributed to present the caloric engine to the public, that a second trial will not be required to warrant its universal adoption.

Cleveland and Wellsville Extension.

The engineer of this road has addressed to its president, Cyrus Prentiss, Esq., a brief communication embracing the principal engineering features of the extended line of this road to Wheeling. In his report he says:

The results of the survey show in a very satisfactory manner the entire practicability of the route and its general cheapness of construction.

The shortness of the time appropriated for the survey did not permit a minute examination of all the ground, but at points where any difficulty presented, care was taken to ascertain the controlling points, and sufficient data obtained to determine approximately the position of the line, and character of the work to be encountered.

An examination of any map of the state of Ohio, will show the general directness of the Ohio river, between the points designated in your instructions, and the line occupying the valley. The entire distance, affords the most favorable ground for the adjustment of a line of easy grades and light curvature enabling trains to move at the highest speed with ease and safety.

The measured distance of the line is 38 miles, the minimum radius of curvature may be safely assumed at no less than 2865 feet, with maximum grades in no case exceeding 15 feet per mile.

Where the line occupies the bottoms, which it would do for a large portion of the distance, composed as they are of sandy loam and excellent gravel, very suitable for ballasting, the graduation would be of the easiest character.

Upon some of the narrows where the river flows immediately at the base of the hills, some rock excavation will occur. The heaviest points of this character will be immediately below the mouth of Yellow creek, at Island creek, and at the Black Bone above the mouth of Willis creek, near Steubenville.

In each case, however, the work would be side cutting; at the latter place a heavy retaining wall would be necessary to prevent the road from slipping, and to counteract the abrading effect of the current on the embankment in seasons of high water. At some other points also it may be found expedient to construct similar protection, and an item has been introduced in the general estimate annexed, which is considered amply sufficient for that purpose.

The only important bridges will be those of Yellow creek, Cross creek and Shirt creek, where

spans of from 120 to 150 feet wide will be required.

The remaining streams of any magnitude will be easily passed by arch culverts, and open structures of short spans.

Stone in great abundance and of superior quality can be obtained within short distances along the line, either in detached masses or in quarries easily worked.

The estimates for graduation and masonry were made with reference to a road bed for a double track, with masonry and bridging of first class work.

The estimates for superstructure were based upon the actual average cost per mile of the superstructure, upon the Cleveland and Pittsburg road, using a rail of sixty lbs per yard, cast iron chairs of 20 lbs. each, ties 6 by 8 inches, 8½ feet long, two feet from centre to centre, and spikes ½ square by 6 inches long. The estimate for superstructure also covering ballasting, cattle guards, road and farm crossings.

Total estimated cost of graduation,, masonry, bridging and right of way from mouth of Yellow creek to Bridgeport, 38 miles, $343,000. Cost of superstructure per mile $7,518 00—38 miles is $285,684. Average cost per mile $16,544,31. All of which is respectfully submitted,

J. LINTON, Chief Engineer.

American Railroad Journal.

Saturday, July 24, 1852.

Canada.

Canada has always been an object of the most earnest solicitude, on the part of the British government, and, since the separation from her of the thirteen united colonies, which now compose the American Union, no portion of the empire has given more thought to her statesmen, or excited more interest among her people.

The French power on this continent at one time seemed likely to become permanent, and had it not been for the character and early history of the English colonists upon the Atlantic shores, in whom were implanted local attachments stronger than all political associations, it is easy to believe that the military superiority of the French might have given them the ultimate control of the continent.

The English settlements at Jamestown and Plymouth were private undertakings in contradistinction to Imperial suggestions, and were accidents of fortune rather than the premeditated designs of conquest and of empire.

With the keen instincts of military and geographical science, France took possession of the two great rivers of the continent, and extended her line of military possessions from the mouths of the Mississippi and the St. Lawrence, to the sources of both streams, enclosing the English possessions within the limits of that narrow belt of country which is confined to the Atlantic slope of Appalachian slide from the Gulf of Mexico to Sagadoch. The residue of the continent east of the Rocky Mountains, with the great Basin of the St. Lawrence and the Mississippi, was under the control of France.

Upon what simple accidents the fate of empire turns. The capture of Quebec by Wolfe in 1759, has been of more consequence to the world than the battles of Platea or of Waterloo. The loss of Canada, led France subsequently to cede to the United States Louisiana and the Mississippi valley.

France surrendered to England by the treaty of 1763, without reserve or qualification, a territory which is yet to become the home of a people more numerous than that of the greatest nation of Europe, a country of more resources, and yet to become more renowned than those possessions which at any one time the Roman eagles overshadowed.

The French population of Canada, of a different race and a hostile religion, had no sympathies with, and scarcely any knowledge of, their southern neighbors. Grown up with the feudal habits of the thirteenth century, in a wilderness by themselves, they refused to join the thirteen colonies in their revolt in 1774, and the stirring appeal of the "General Congress" of October 26, 1774, found no response in the French character. A mere chance shot, by which Montgomery was slain, in December, 1775, prevented the Canadas from falling at that time into the hands of the united colonies.

The history of Canada, since our Revolution, is a history of colonial administration. It is the history of a conflict of political opinions and personal animosities, such as no portion of the earth can parallel. The hostility of races, and of religious opinions, explains only a portion of their struggles, and the growth of the democratic idea in Canada has encountered the same resistance in the English mind at home, as that exhibited toward the progress of popular rights by the conservative party in England, under the guidance of such minds as Pitt and of Wellington.

The "Quebec act" of 1774, was a concession to the French, to guard against any disposition to fraternise with the disobedient colonies, and the Constitutional act of 1791, which separated the Province into Upper and Lower Canada, and gave legislative assemblies to each, failed to give satisfaction to the majority of the people of Lower Canada, from the perpetual conflict between the representatives of the people and the executive authorities of the Province.

Political agitation in Canada was checked during the war of 1812. Under the leadership of Louis Joseph Papineau, who, from his entrance into public life in 1809, at the age of 21, has exerted a controlling influence over the French population, a conflict between the people and the executive grew up, a majority of the assembly demanding the control of the supplies, after the pattern of the commons in England. The government of Canada was nominally modelled after that of the home government—an executive in the person of the governor, a legislative council appointed by the crown for life, and an assembly chosen by the people.

The theory of the government was one thing, and the practical working of it another. The legislative council and office holders, of English blood, held a complete negative in the popular branch, which was under French influence. The power was finally seized entirely by the council, who disposed of the revenues without regard to the votes of the assembly, and Lord Dalhousie, the governor of Canada in 1827, set aside the election of Papineau as speaker of the assembly.

An union of the colonies was attempted as early as 1822, and successfully resisted by the French party, which, in 1831, with Papineau and Morin for leaders, proposed as the means of harmonising their differences, an elective council. In the elections of 1834, an overwhelming popular vote of each Province was virtually given in favor of this proposition.

We do not propose to follow out the narrative of events which resulted in the popular outbreak in 1837, and the act of union of July 23, 1840, under which the Canadas are united.

The concessions to the popular party under Lord Sydenham and Sir Charles Bogot were stayed for awhile by the firm rule of Sir Metcalfe, from 1842 to 1845. In 1846, the principle of "responsible government" was conceded to all the British North American Provinces, or in other words the right to govern themselves.

There have been attempts to check the exercise of the legislative powers of the colonies, by despatches from the colonial office; as in the case of the protective duty on iron by Canada in 1848, and the Facility Bills of New Brunswick, in aid of the European railway in 1851; but the home government have finally yielded, at times in rather an ungracious manner, their assent to colonial legislation.

The enlarged canals of the St. Lawrence which were undertaken during the administration of Lord Sydenham in 1841, were aided by the imperial parliament, who gave the guarantee of the government to Canadian debentures, thereby furnishing the money at rates of interest paid in English consols. Under this states of things, the public mind of Canada became occupied with new ideas, and the spirit of public improvement grew rapidly into favor. The immense expenditures of money for public works from 1841 to 1845, stimulated every branch of industry throughout Canada, and no portion of the continent made more rapid progress during this period. But this growth and prosperity of Canada was temporary, and artificial. The natural sea coast of Canada was within the United States. Flour, and other agricultural products, could be carried from New York to Liverpool cheaper than from Montreal or Quebec, owing to the increased cost of freight and insurance from the St. Lawrence. The Canadian canals depended for their value as a means of bringing the produce of the west to a market, on the fact that protection was afforded by the English government to colonial produce. The possibility of a change in the commercial policy of England seemed not at that time to have entered men's minds. In 1844, an American gentleman proposed to the merchants of Montreal a railway to the nearest seaport on the Atlantic, from the foot of canal and lake navigation at Montreal. The United States Drawback Law of Mar. 3, 1845, allowing the transit of foreign goods to and from Canada through our own ports, was the measure that demonstrated to the Canadians, and especially to the merchants of Montreal, the insecurity of their position for retaining the carrying trade by the St. Lawrence route.

The immediate withdrawal of the trade of Upper Canada from the St. Lawrence route, and its seeking its destination by the way of New York city, aroused the public feeling of Montreal in favor of the Portland railroad, and the final abolition of the duties on grain, left no alternative to the lower St. Lawrence, but a surrender of their trade to New York hands, or the completion of her proposed railway to Portland.

The history of that enterprise is already known, and the completion of the entire line the coming year, will change the course of trade throughout the St. Lawrence valley.

We have glanced at certain points in the history of Canada, for the purpose of showing the character of the struggles through which her people have passed, and to account for the absence of that national sympathy which is essential to all true greatness. Canada has been, in truth, the theatre of the great struggle between feudality and prerogative on the one hand, and of popular rights on the other. With two parties as firmly hostile in all their bearings toward each other, as the two great political parties in this country, there are in Can-

ada, as with us at the present time, in fact no real differences of political sentiment.

The people of Canada, with their unrivalled advantages, under a system of government practically the freest of any on earth, are just entering upon a career of prosperity and of progress which, if wisely directed in its course, shall be without a parallel for success. A line of railway connecting Quebec and Montreal with each other and the ocean, crossing the St. Lawrence at the city of Montreal, will be extended on the north shore of that river, and of lakes Ontario and Erie, to Detroit, forming, in connection with her unrivalled canals, such veins of commerce as can no where else be found upon the continent, for easy grades, cheapness of construction, and prospective business advantages.

The people of the St. Lawrence valley partake as fully as ourselves of the geographical characteristics of their country, and the majestic movement of the waters of Niagara, is a type of their future history. The healthful climate of the northern shore of the valley of the lakes, will give to those who dwell upon it strength to gather in full fruition the rewards of the highest culture. A country greater in extent and natural resources than both France and the British Isles united, is soon to come into possession of those new agencies, which have made the last quarter of a century the heroic age of the world.

To this country the attention of British capitalists is now directed, and measures are in progress which will secure at a comparatively early day the completion of an unbroken line of railway from Quebec to Sandwich, opposite Detroit, in connection with their line of railway to the natural seaport of Canada at Portland.

To Railroad Contractors.

Attention is invited to the Advertisement of the Chicago and Mississippi railroad company in another column, for proposals for the grading masonry and bridging on 60 miles of that road, between Springfield and Bloomington. It will be seen that the work is to be done at once, and to be paid for in cash. It is also divided into small jobs for the benefit of small contractors.

Also, to the advertisement for proposals for the grading and masonry of 15 miles of the Belvidere Delaware railroad.

And to another, of the Central Ohio railroad, for proposals for the grading and masonry of 41 sections of that road.

Cotton Steam Packing.

THIS Superior Packing is prepared by us expressly for Locomotive Engines. The advantages resulting from its use are—cheapness—greater safety, and economy of labor.

Orders addressed to us at 91 Wall st., New York, will have prompt attention.

J. M. HALL & CO.

P. S,—Waste for cleaning engines, in quantities as wanted. July 24, 6m*

Jeffersonville and Columbus Railroad.

This road has been so far completed that passengers can now leave Jeffersonville in the morning at 6 o'clock and reach Indianapolis the same day at 5 o'clock.

Kentucky.

Maysville and Big Sandy Railroad.—The Maysville Eagle of the 15th inst., states that, "nearly double the amount required by the charter to organize this company has been subscribed," and notice is given for a meeting of the stockholders on the 24th inst., to elect a board of directors.

Quick Run to Albany.

The new steamer *Francis Skiddy* left New York a few mornings since at five minutes past seven, and reached Albany at half past two. Thirty minutes were consumed in landing, so that her running time was only six hours and fifty five minutes.

Pennsylvania Railroad.

It is expected that the regular trains will commence running between Pittsburg and Greensburg about the 15th inst. This will leave a gap of only ten miles of railroad unfinished.

Stock and Money Market.

There is scarcely any change to notice in the market for either shares or securities. The same general features noticed in our last continue to rule in the operations at the Exchange—an abundance of money, and activity in the fancies at high rates. Good securities are firm, without disposition on the part of holders to realize. Monied men generally are ruralizing, which prevents activity in the bond market, and scarcely any new loans are making. As a result of this, we look for an accumulation of money to the credit of capitalists, which at the opening of the fall business will be seeking investment in good railroad securities.

The last arrival from Liverpool brings London dates to July 6th, with the following quotations for iron:

Iron rails firm at £6. Merchant bars £5 5s. per ton free on board at Cardiff or Newport. Glasgow pigs have advanced to 45s. 6d. per ton.

Railway Share & Stock List;

CORRECTED WEEKLY FOR THE

AMERICAN RAILROAD JOURNAL.

NEW YORK, JULY 24, 1852.

GOVERNMENT AND STATE SECURITIES.

U. S. 5's, 1853	101¼
U. S. 6's, 1856	107¼
U. S. 6's, 1862	115
U. S. 6's, 1862—coupon	—
U. S. 6's, 1867	118
U. S. 6's, 1868	118
U. S. 6's, 1868—coupon	118¼
Indiana 5's	94
Indiana 2½	54½
" Canal loan 6's	95½
" Canal preferred 5's	47
Alabama 5's	93
Illinois 6's, 1847	81
Illinois 6's—interest	52½
Kentucky 6's, 1871	108½
Massachusetts sterling 5's	—
Massachusetts 5's, 1859	—
Maine 6's, 1855	—
Maryland 6's	106½
New York 6's, 1854-5	—
New York 6's, 1860-'61-'62	116
New York 6's, 1864-'65	120
New York 6's, ½ y., 1866	119½
New York 5½'s, 1860-'61	110
New York 5½'s, 1865	110½
New York 5's, 1854-'55	—
New York 5's, 1858-'60-'62	106
New York 5's, 1866	—
New York 4½'s, 1858-'59 '64	101½
Canal certificates, 6's, 1861	—
Ohio 6's, 1856	104
Ohio 6's, 1860	108
Ohio 6's, 1870	115
Ohio 6's, 1875	117½
Ohio 5's, 1865	103½
Ohio 7's, 1851	—
Pennsylvania 5's	98
Pennsylvania 6's, 1847,-'53	—
Pennsylvania 6's, 1879	—
Tennessee 5's	—
Tennessee 6's, 1880	107
Virginia 6's, 1886	109½

CITY SECURITIES—BONDS.

Brooklyn 6's	—
Albany 6's, 1871-1881	107
Cincinnati 6's	100
St. Louis	95½
Louisville 6's 1880	94½
Pittsburg 6's, 1869-1871	—
New York 7's, 1857	108
New York 5's, 1858-'60	101½
New York 5's, 1870-'75	105
New York 5's, 1890	106
Fire loan 5's, 1886	—
Philadelphia 6's, 1876-'90	104
Baltimore 1870-'90	106½
Boston 5's	102

RAILROAD BONDS.

Erie 1st mortgage, 7's, 1867	113½
Erie 2d mortgage, 7's, 1859	107
Erie income 7's, 1855	100½
Erie convertible bonds, 7's, 1871	99½
Hudson River 1st mort., 7's, 1869	108
Hudson River 2d mort., 7's, 1860	94
New York and New Haven 7's, 1861	106½
Reading 6's, 1870	87½
Reading mortgage, 6's, 1860	92
Michigan Central, convertible, 8's, 1860	109
Michigan Southern, 7's, 1860	99½
Cleveland, Col. and Cin. 7's, 1859	109½
Cleveland and Pittsburg 7's, 1860	101½
Ohio and Pennsylvania 7's, 1865	102
Ohio Central 7's, 1861	—

RAILROAD STOCKS.

[CORRECTED FOR WEDNESDAY OF EACH WEEK.]

	July 22.	July 15.
Albany and Schenectady	110	109
Boston and Maine	107	106½
Boston and Lowell	108½	108
Boston and Worcester	103¾	104
Boston and Providence	89½	89½
Baltimore and Ohio	82½	82
Baltimore and Susquehanna	29	—
Cleveland and Columbus	—	—
Columbus and Xenia	—	—
Camden and Amboy	146	—
Delaware and Hudson (canal)	125½	125
Eastern	98	198½
Erie	86¾	87¼
Fall River	—	—
Fitchburgh	103¾	103½
Georgia	—	—
Georgia Central	—	—
Harlem	72	71½
" preferred	110	111
Hartford and New Haven	—	—
Housatonic (preferred)	35	35
Hudson River	65	64
Little Miami	—	—
Long Island	19½	20½
Mad River	—	—
Madison and Indianapolis	112½	—
Michigan Central	112	113½
Michigan Southern	118	118½
New York and New Haven	114	113½
New Jersey	130	130
Nashua and Lowell	—	—
New Bedford and Taunton	—	117
Norwich and Worcester	53½	55½
Ogdensburgh	26½	—
Pennsylvania	46½	44½
Philadelphia, Wilm'gton & Balt.	32½	32
Petersburg	—	—
Richmond and Fredericksburg	100	100
Richmond and Petersburg	35	35
Reading	87½	88½
Rochester and Syracuse	123½	122½
Stonington	54	59
South Carolina	—	—
Syracuse and Utica	134½	133
Taunton Branch	115	115
Utica and Schenectady	133	137
Vermont Central	14½	15½
Vermont and Massachusetts	20	21
Virginia Central	—	—
Western	103½	104
Wilmington and Raleigh	57½	57½

Zinc Paint.

The attention of our readers is called to the Advertisement of Zinc Paint in another column.

Lexington and Danville Railroad.

The board of directors elected upon the organization of the company in October last, submitted to the stockholders on the 4th of May their first report through their president James Barbour Esq.

On the 20th of October, Mr. Geo. C. Schaeffer, was appointed chief engineer who entered at once upon the discharge of his duties. The whole route from Lexington to Danville has been examined and found practicable, offering favorable grades for the cheap construction of an excellent road. The charter of this company is such that it may apply to any county through which the road may pass, to subscribe to the stock of the railroad in bonds bearing an interest of six per cent, an amount not exceeding two hundred thousand dollars, or for cash subscriptions to be raised by direct taxation, not exceeding 3 per cent of the taxable property of such county. It may also extend the road through the state of Kentucky to the state line in the direction of Nashville, Tenn., or any other point in that state which the company may select. It will be observed that these are extraordinary privileges, under favor of which there is no doubt of the immediate construction of the road from Lexington to Danville, and, also a strong probability of its extension through the state of Kentucky by the same company, to some point in Tennessee, when a connexion will be formed with all the southern, south-eastern and south-western lines.

On the north, it will be remembered, that the city of Lexington is connected with all the principal cities by railroad, and there is wanting only about one hundred and eighty-five miles of road in Kentucky and Tennessee to connect with the Chattanooga, Selma, and other southern lines.

The Kentuckians now seem to be aware of this fact, and are apparently determined that such a responsibility shall rest upon them no longer unanswered. From Lexington to Danville is thirty-five miles. The stock for the construction of this road is nearly all subscribed, and the work will very soon be put under contract, and completed at an early day. The citizens on the line, from Danville to the state line and thence in Tennessee to McMinnville, have had meetings and county conventions, at which assurances were given of such subscriptions as will justify the Lexington and Danville company in putting the whole line under contract, if they should deem it their most feasible route. About this there seems, however, but little doubt, as the citizens on this line seem to have taken such initiative steps as were required by the directors of the Lexington and Danville railroad before they would feel justified in trying to raise the means necessary to construct the road and recognize it as a portion of their work, exercising the privileges of their charter. This portion of the line known as the proposed South-western railroad, from Danville to McMinville, Tenn., is one hundred and fifty miles. In order to show the nature of the country through which this road is to pass, and the probability of its being supported by local traffic, we will make some extracts from the report of the board of directors.

The whole north, and east, and west, *are brought to Lexington*, and *then* to *Danville*. Look at the map of the United States, and trace the line from Danville to Mobile, just west of the Cumberland mountains, and you will follow the track of the Southwestern railroad from Danville to McMinnville, and you find the shortest practicable line for a railroad from Cincinnati, Maysvile, Ohio, Indiana, the Lakes, and central Kentucky to Chattanooga, Mobile, Georgia, South Carolina, Alabama and Florida. If you would go from Cincinnati or any part of Ohio to Charleston, the Danville and McMinnville road is, by perhaps one hundred miles, the shortest road which will ever be constructed, unless it may be one through Knoxville, and that road will be an additional outlet to our road.

But little has been said of the geography of the state of Kentucky,—and the character of its surface as affecting the question of other roads being built parallel to our road, which might compete with it. This question will not be presented at length. Suffice it to say, that nature has fixed the geography to suit the interests at Lexington and Danville. It would be difficult to construct a railroad from Danville due east into Virginia.

In consequence of these facts, the Lexington and Danville railroad, not only becomes a link in the roads from the *North*, connecting at Lexington, and the roads from the *South* which may approach Danville, but it becomes a part of the *East* and *West* line, connecting, as it will, the northeast and southwest, and the northwest and southeast.

If a railway is constructed from Lexington in the direction of the mouth of Big Sandy, either by Maysville or a more direct line, it will always be 70 miles nearer from Nashville, to the east, by Danville, than by Louisville, because Danville is at least 10 miles nearer Nashville, and (by railroad) 60 miles nearer to Lexington than Louisville is. No shorter line can be found than the one here indicated. Whilst a direct road would be the best for Nashville, so far as an eastern connexion is concerned, yet, if she is content to meet Louisville at Bowlinggreen the line through Bowlinggreen by Danville is shorter, say 60 miles, than by Louisville, and, as has been previously remarked, our interests may be advanced by that combination of roads at Bowlinggreen, which will attract Clarksville and Memphis to that point, and for Clarksville, Memphis, Arkansas, and Texas, the shortest line will be through Danville and Lexington to tee eastern cities.

Lexington will, in a short time be the southern co-terminus of the Northern roads. A similar position, as to the country south of Kentucky river, which Lexington occupies to the north, invites, and we believe will most certainly secure, to Danville one, if not more, of the lines from the south rapidly converging to the centre of the Union. If there was no other consideration, the heavy expense which this company has undertaken to meet, in crossing Kentucky river, will forever prevent any other company from attempting to compete with this road.

But there are other views which present the prospects of our road in a favorable light,—we refer to the location of the Kentucky railroads,—their access to the wealth and productive capacity of the state,—their concentration upon Danville, as in the most direct line for reaching the southern markets,—the adaption of those productions to the markets of the south, and the absolute necessity of seeking and securing a market peculiar to our wants, and to which our produce may be sent under the greatest advantages.

The taxable property of the state of Kentucky, as listed for taxation, according to the Auditor's report for 1851, amounts to $317,082,604.

A line drawn from Louisville due south in the direction of Nashville, there would be 24 counties west of that line, whose tax list was valued at $52,653,502, and six counties directly south from Louisville on the line of the proposed road from Louisville to Nashville, valued at $13,697,315; or thirty coudties in western Kentucky valued, and taxed at $66,350,817, not directly interested in the railroads north of Danville, and embracing about one-fifth of the taxable property of the state, including most of the Green River, lower Cumberland, and Tennessee rivers; through which it is proposed to construct the Louisville and Nashville railroad, the Louisville and Memphis railroad, and the Henderson and Nashville railroad.

The railroad from Danville to Lexington, will connect with railroads from Louisville, Covington and Maysville, and those four railroads are accessible, *with convenience*, to four-fifths of the residue of the property of Kentucky. It is singular how exactly the railroads meeting at Lexington have direct access to the whole wealth of Kentucky. Those lines, to one acquainted with the geographical distribution of the wealth of this state, would seem as though they had been located, with a view precisely to furnish to the whole of the wealth of the state, the means of access to the east, west, north, and south; and all the connexions are so arranged and secured as to extend those lines north, east, south, and west, *indefinitely*. Nothing is lacking except the way to the south. When all the Kentucky roads mentioned are completed, there will be railroad connexion from Danville and its vicinity, to the north, the east, and the west. Maysville may go west, and Louisville can go east. All are shut out from the south.

The railroad from Danville to Covington and Maysville, will pass through eleven counties taxed at a value of $76,719,591. A single tier of counties east of that line are taxed at $35,072,905; a single tier ot counties west of the same line are taxed at $33,259,700. And two counties between the Covington and Maysville roads, taxed at $6,480,491, making in all $151,532,691, or one half the wealth of the state of Kentucky lying on and tributary to the northern roads terminating at Danville and Lexington. Add to these facts, that when the southern and south-eastern roads are completed, the only outlet for all the above counties to a southern market will be over the Lexington and Danville road and its extensions, and also several other counties not included in the above estimate, but which will find this their nearest route and the sum of wealth which will be represented by this road will be increased to $231,532,691. In these estimates, of course, no reference is had to the amount which the value of all the above property will be enhanced by means of this road and its connections, and yet, according to the governing philosophy of railroads generally, it would be very large, and the lands being brought nearer to market, they will be more highly cultivated. Emigration and industry will be induced to flow in, and central Kentucky will be, not a whit behind the most enterprising and wealthy of the western states—Why? Merely because her railroads will develope her resources by putting her on a level with other states whose farmers have now better access to market for the fruits of their labors.

The report continues:

The productions of Central Kentucky are peculiarly adapted to a Southern market. Every county in Kentucky which produces hemp lies on, or adjoining the lines of railroad north of, and to be connected with Danville; so the forty thousand tons of hemp manufactured into bagging and rope, or the greater part of it, will be carried on this road when it is extended south. The counties tributary prepare for market probably 300,000 hogs, almost all the beef cattle *fattened* in the State, most of the mules and horses, a portion of the tobacco, and in fact the principal portion of the exports of the State, such as the South and Southeast need, and are purchasing now at exhorbitant prices, the result of the heavy cost and long delay incident to the present mode of transportation.

It is usual for railroad companies to publish estimates of the amount of business which they expect to do on their roads; in this instance that would be difficult, until it is settled whether the road is to be local or a through and National road. When the proposition was discussed before the people of Fayette and Boyle, it was confidently asserted, that even as a local road, its construction would be justified by the amount of business which would be offered. Remember that between Danville and Chattanooga, or Knoxville, there is no navigable stream, except the Cumberland, and that is very indifferent and unreliable. For East Tennessee and Western Virginia, a large portion of the dry goods and groceries are hauled in waggons from

Louisville and through Danville. The section of country described is about one sixth part of the State of Kentucky in territory, wealth and population. They list for taxation over sixty millions of dollars. They export large quantities of hemp and tobacco,—perhaps 150,000 hogs, 10,000 fat cattle, as many mules, and as many horses, etc.. etc.—This road crosses the Kentucky river, and whilst the crossing of that stream will be a large addition to the cost of the road, yet the coal, the salt, the iron, and the lumber of the upper Kentucky, will amply remunerate the counties interested in our road, for bridging that stream. This road,—if located on one of the lines, and including the cliff of Kentucky,—will run through land, which, for 3 miles on each side of the railroad, would now sell, at public sale, at an average price of *fifty dollars per acre.* Looking to the prospects of a road to the South, the whole aspect of the business of the road changes. Whilst many of the productions around and South of Danville, will be taken North, it is confidently expected that the rich and productive counties of Northern Kentucky, will transport through this channel a great portion of their products to a Southern market and over our road. Indeed, such must one day be the course of trade from Northern and Central Kentucky.

It is not wise to anticipate too largely upon future and contingent benefits; but it does seem to us, that the probabilities of closing the gap from North to South, from the Southern terminus of our road, are sufficiently great, to justify estimating and hoping for the inestimable good to be derived therefrom.

For instance, look for one moment at the amount of business which would be thrown upon such a road. If it was properly located it would take off at least three-fourths of the bagging and rope manufactured in this State; this amounts to 30,000 tons—or one hundred tons freight of a single article for every working day in the year. Other products of Kentucky would flow to this line in similar proportions. It would open a new market to the manufacturers of our State and those immediately North of us.

It is true, that from Danville South the land is not equal to the best Kentucky soil; yet it is productive, and promises as much as the land on any line through the State. Upon either of the lines proposed South from Danville, there are products differing from one another, yet either of them will furnish the elements for a large local trade.

Applications have been made from more than one source for the privilege of applying for subscriptions of stock for the continuation of the road under our charter. The directory at a meeting, April 19, 1852, adopted the following order, which is submitted to the stockholders for their consideration:

Ordered, That in the opinion of this board, the Lexington and Danville railroad should be extended in the direction of Knoxville, McMinnville or Nashville, if an additional subscription can be obtained to the capital stock of this company sufficient to justify it in undertaking the extension in either of said directions, and the President of the company is authorised to take all necessary measures to obtain conditional subscriptions on each line; and the road to be located on whichever line said subscription shall be first secured.

Provided, That at the annual meeting of the stockholders, they shall approve of this order.

The stockholders at their meeting in June did ratify the above order, and it gives us great pleasure to know that at the great railroad convention at Russell Springs, July 3d, the people on the line of the proposed Southwestern railroad, in the direction of McMinnville, agreed to subscribe in sufficient sums to insure the building of a road on that route by this company, in response to a proposition on its part to undertake the construction of the same upon the *bona fide* subscription by counties and individuals, of the sum of one million dollars and the expenses of the survey. The following is the estimated cost of the Lexington and Danville railroad by Mr. Schaeffer.

An estimate is given on one line through from Lexington to Danville, and based on prices which are thought to be liberal. The calculations have been made for a roadbed 14 feet wide on embankments and in rock cuts, and 16 feet wide in earth cuts.

The result for grading, including bridges and culverts, (excepting, however, the Kentucky river bridge), is $248,698. This amount may be reduced in location, and also by encountering less rock in the ridges, in which item the estimates have counted on the largest possible quantities.

The estimates for superstructure are for a 56 lb. T rail, and for ballasting, laid with more pains and in larger quantities than usual.

Superstructure per mile:		
T rail 56 lbs. 88 tons at $50	$4.400	
Chairs and spikes	600	
Iron		$5,000
2,100 locust or cedar cross ties 30 cts.	$630	
2,000 cubic yards ballast, 50 cts	1,000	
Laying track	600	
Distributing materials	400	
		2,630
		$7,630

The whole cost will then be as follows:

Grading, etc., say	$250,000
Superstructure, etc., for 36¼ miles, including turnouts,	
Cross ties, ballast, etc	95 995
Iron	182,500
Kentucky river bridge	150,000
	$678,495

By slightly increasing the grades, the cost may be greatly reduced—on the other hand, to obtain still lower grades, an increase of expenditure must be encountered. The determination of these questions will depend entirely upon the prospective traffic of the line.

Thus, for from $30,000 to $50,000 less than the sum above named, a very excellent road may be built to accommodate a local trade, while for a great north and south through trade, at least as much should be added. A business of this kind is always most profitably carried on by a well built and well furnished road.

The same remarks will apply to the Kentucky river bridge, in which a variation of cost, nearly as great as that above named, may be made, as the work is intended either for a light or heavy traffic.

Respectfully submitted,

GEORGE C. SCHAEFFER,

Chief Engineer Lex. and Dan. R.R.

Danville, May 4, 1852.

To meet these expenditures, the company have the following resources:

Individual and corporation subscriptions.	$156,200
Jessamine county subscriptions	75,000
Fayette " "	200,000
Boyle " "	150,000
Probable additional cash subscriptions	40,000
	$621,000

Leaving $57,205 and the furnishing and equipment still to be provided for.

Since this report was submitted, proposals have been received, and it is not improbable that the whole road will be put under contract by the 15th of August, as will possibly also a portion of the extension. This latter, taking the route to McMinnville is said to be a more favorable grade even than the 35 miles between Lexington and Danville. According to the engineer's estimate, setting aside the cost of the bridge across the Kentucky, the cost of construction per mile would be about $14,680. At this rate, the 90 miles to the State line from Danville would cost $1,321,200. Now should the people of Kentucky on the line of the proposed extension, subscribe $1,000,000 of the stock, we see no reason why the Danville company should not order the surveys and cause the whole extension to be put under contract at an early day, relying upon additional subscriptions and the credit of the company to raise the funds for the completion and equipment of the whole route.

We believe the Kentucky spirit is now fairly aroused, and will not be quelled till this is done; and moreover that the Tennesseeans will meet them at the line from McMinnville. This done and the Selma, Winchester and McMinnville roads finished, will give a continuous line of railway from this city to Selma, passing through the heart of this State, Ohio, Kentucky, Tennessee and Alabama.

Emigration Westward.

A writer in a recent German journal has an article on America and emigration to this country—after alluding to the tendency which there has been for centuries for people in the east to pass towards the west. The speculations of this writer are curious, and we have thought them deserving of a translation:—

Since the discovery of America the inexplicable current of nations to the west, has begun again. Many millions have crossed the ocean, have established a new home in America, and have driven out the aboriginal inhabitants. Many thousands of European emigrants have fallen in this conquering march, but—now, we are making again this year the experiment. The emigration to the far west, to the enigmatical America has grown to a degree, which makes the future uncertain and alarming. We may affirm with truth that one-half of civilized Europe is pining with a longing for America.

Attempts have been made to explain the emigration of the various nations from purely external causes, and to account for the present prevailing emigration, in part by the unsettled social condition of Europe, partly from the excess of population partly from natural calamities, and particularly the political relations of the continent of Europe. These historical and natural causes co-operate with other circumstances undoubtedly, and have their effect, but the first and last reason still remains, an irresistible inclination of which those who are seized by it can give no account; an unconquerable longing for the west, like the instinct of the birds of passage, which teaches them at the approach of the rough season of the year, to go to the south west.

We have for this peculiar feature in the physical disposition of the human race no other explanation to give, but that it exists, and displays itself the more vigorously, the farther nations and individuals are removed from the highest point of cultivation of the age. It is only necessary to converse with persons of the lower classes to be convinced, that there is another power at work in their minds which attracts them to America, beside the often imaginary feeling of their oppressed condition. You tell them that they are changing a certainty for an uncertainty, and point to them the sad fate which awaits the unprovided emigrant in the American seaport, with ever so vivid colors, you preach to deaf ears, and soon arrive at the conviction, that there is nothing to be done with minds which seem to be under the influence of an almost demoniacal power. They bear within them a strong, unshaken faith in the fair, Great west country as powerful as that which formerly moved Christopher Columbus, and they feel as strongly as he did, that all dangers and difficulties are to be overcome with their inadequate means.

This tendency of the nations to the west explains why all attempts at colonization, which in contradiction to this law of nature, have been made from Europe to the east, have had but little success. Many Germans have emigrated to Russia, but very few have become acclimated there, and by far the greatest number of these would if possible have returned to their western homes. We have colonies in Russian Poland and on the Black sea, they vegetate but they never can attain to any independent strength. It will be said in reply to this that the fault here is in the political institutions of the empire of the Czar. It may be in some measure, but the political feeling formed also a constant element in the tendency of nations towards the west. It lies in the minds of man, awaiting an individual developement, as plants wait for light and air, and it looks for a favorable political atmosphere for its ef-

forts. How convincingly did Friederick List in his time point out the advantages of a German emigration to Hungary on the Danube, what great trouble was formerly taken to people the fertile plains of the Theiss and Marosch with German peasants, all in vain, while thousands go to the sources of the Ohio, and the shores of the Mississippi and Missouri, and prefer to put the ocean between them and their native land. There is also little emigration to the immeasurably fertile banks of the Ganges, but the English come after another law, rather as bearers of European civilization, to take possession of deserted places. The English are not colonists in India but masters of those countries, which by their ships of the line, their commerce and their soldiers they have brought under their dominion. To this mere physical and instinctive current of the nations stands directly opposed, the religious current, the political ideas, and the inducements to great catastrophes in the moral religious, and intellectual dominion, as though the guiding, reasoning, and moral principle in the history of man's being, and its preponderance over the historical elementary power, would manifest itself in opposition to these physical tendencies. History teaches us that almost all political disturbances and revolutions in the dominions of thought spread from the west towards the east. While in the west unconscious, destructive powers of nature prevail, the Nemesis of civilization has always taken its origin from the east.

Greece destroyed the empire of the Persians, Europe conquered Asia, to which the expedition to Troy of the Helenists was the prologue, and the romance of the crusades the epilogue. Rome brought Greece into bondage, and the power of Rome, the ruler of the world, was twice broken by Germany. The costly expeditions of German emperors to Italy, were nothing more than the consequence of the idea of a German dominion over Italy. The horsemen of the Huns were driven back by Henry I., and though the emperor Otto I. was at first driven back, yet the German element has since pressed conquering to the very borders of Turkey. The power of the Crescent which rose in the south-east, was in the first half of the present century broken by the powers of the west. The power of the German kings has extended, and driven the Sclavonians from the territories between the Elbe and the Weichsel.

What overpowering influence France has exercised over Germany, is still fresh in our memory. France has for a century governed Germany by its literature, its manners, its arts, its language, even its fashions. The emperor Napoleon put an end to the venerable and holy empire of the German people, and if he then had carried his eagles still farther, to the walls of the city of the Czars, he would have established the laws which move from the west to the east with irresistible power. As it was he only marched out and prepared the great catastrophe which he was not permitted to complete, the perspective of which may be seen in a distant future. The liberalism which sprung up on the soil of the July revolution of the year 1830, and the radicalism which rose from the seed of the 24th of February, 1848, both uniting with prophetic glance point to the present state of the world, and the mission of the American Free states, whose interest lies in civil freedom. As soon as external circumstances and politics become unfavorable to this tendency, the cry is raised that civil freedom has entirely left Europe, and can only reach the European continent in its feeble evening glimmer from the far off western land—and now it is not only radicalism, not merely revolution which points to the star spangled banner; no, diplomacy has begun to turn its thoughts in that direction, and to look at it with anxiety.

For the idea of a future reaction of the American sentiment on Europe and the possibility of a return of the North American Heraclides gains more and more consistency, since the Union has begun to interfere in the political affairs of Europe. And it may now be questioned, how far apprehensions of such event are well founded, and whether external circumstances promise that Europe also is to be subjected to a natural and historical law such as we have described, and whether America in reference to the mother country, must take upon herself the mission of the historical Nemesis.

County Bonds of Ohio.

H. V. POOR, Esq:

Dear Sir:—The new constitution of Ohio took effect on the first day of September 1851. The old constitution was silent upon the question of these obligations, and the right of issuing bonds to aid railroads was long exercised by counties unquestioned. In a case before the Supreme court, not involving the question in a direct form, one of the jupges(not now in office) expressed a doubt on the subject, which induced the case of the Cincinnati Wilmington and Zanesville railroad company, *vs.* Clinton county. The Supreme court elected under the new constitution with a full bench, after able argument decided unanimously in favor of the rights of counties under the new constitution to issue bonds. In delivering the opinion of the court the learned judge used the expression, "this subscription having been made prior to the adoption of the new constitution" has led some to conclude that had the subscription been subsequently made, the decision would have been different. The court intended only to decide the case *before* the court, and although the entire question was ably argued before, and considered by the court, no expression of opinion was made or intended by the court. Some members of the court are decidedly opposed to these subscriptions as a matter of policy, but on the bench they do not question their validity. All question as to bonds issued before the taking effect of the new constitution, is by all regarded as forever settled. There are now no bonds in market from Ohio, founded on later subscriptions.

The clause of the new coustitution, simply prohibits the General Assembly from passing laws "authorising these subscriptions," and expressly affirms all laws in force at its adoption. It is difficult to conjecture the grounds on which bonds issued on laws in force and so affirmed, should be considered of doubtful validity. If any such bonds shall be issued, the court will probably sustain them.

D.

Ohio, July, 1852.

Illinois.

Bloomington Extension Railroad.—Mr. O. H. Lee, chief engineer on the Bloomington extension of the Alton and Sangamon road, reached Bloomington on Friday week, having on that day completed his survey of an experimental line, between Bloomington and Springfield. The information which Mr. Lee furnishes to the Bloomington Intelligencer is, that paper says, in the highest degree satisfactory. Several lines have been run, on all of which, at a moderate expense, and on easy grades, a road can be constructed. He expresses very confidently the opinion, that the road will not only be built to Bloomington, but that it will be extended through to Chicago, at an early day.

Suspension Bridge!

STONE MASONRY!

PROPOSALS will be received on the 26th July, 1852, at the Office of the Niagara Falls and International Suspension Bridge Company, for the construction of the Abutments, Towers, Wings, and Approaches, containing 6,000 cubic yards of Masonry, more or less, of the new Railroad Suspension Bridge of 800 feet span, to be erected in place of the present temporary structure, over the Niagara river, one-and-a-half miles below the Falls.

Separate proposals for the Masonry on the East and West shore, including four Towers of 80 and 90 feet high, will be required. The work is under the charge of JOHN A. ROEBLING, Civil Engineer, whose plans and specifications may be examined at the said Office, on the Canada side, on the 23rd and 24th of next month.

DAVID SMITH, *Superintendent.*

Office, Suspension Bridge,
June 28, 1852.

Notice to Contractors.

CHICAGO AND MISSISSIPPI RAILROAD.

SEALED PROPOSALS will be received at the office of the company in the city of Springfield, Illinois, until SATURDAY, August 14, for the GRADING, MASONRY, BRIDGING, and CROSS TIES of that division of this road which extends from Springfield to Bloomington, Illinois.

The distance is about sixty miles, and the route traverses the most elevated and healthy portion of the State.

The line is divided into sections of about two miles each, and the work is to be commenced without delay.

Payments for work and materials will be made in cash.

Profiles and plans may be seen and blank forms obtained at the office of the company in Springfield and Bloomington, Illinois, where any information will be furnished by the Engineer Department.

Satisfactory proof of responsibility will be required from those proposing for the work.

The subscriber will be in New York, at No. 68 Warren-st., up stairs, over Hudson River Railroad Office, until August 3; and will be prepared to exhibit profiles, plans, etc., and give information to such as prefer to offer proposals in this city.

New York, July 15, 1852.

OLIVER H. LEE,
Chief Engineer Chicago and Miss. Railroad.

To Contractors.

PROPOSALS will be received until the 24th of July next, inclusive, at the Engineer Offices of the North Western Virginia Railroad, in Parkersburgh, West Union and Clarksburgh, for the Graduation and Masonry of 50 or 60 sections (of about one mile each) of that road, embracing all the heaviest parts of the work, and containing a number of tunnels, deep cuttings and embankments, as well as a considerable share of Bridge and Culvert Masonry. The line extends from the Baltimore and Ohio Railroad at the mouth of Three Forks Creek, two miles east of Fetterman, to Parkersburgh on the Ohio river, and is about 104 miles in length.

Specifications will be ready at the offices named, and also at Fetterman, on and after the 5th of July proximo, and Engineers will be upon the line to afford information.

The country through which the road passes is healthy, well settled and cultivated, and abundant supplies may be had along the route and from either end of it, by means of the Baltimore and Ohio Railroad, the North Western Turnpike and other good roads, and by the Ohio river. The facilities for cheap execution of the work are unusually great. Hands must be abundant, as the Baltimore and Ohio Railroad is advancing rapidly to completion, and releasing a large amount of labor.

Bidders must bring the best testimonials, and will state what other work they may have on hand.

By order of the President and Directors.

BENJ. H. LATROBE,
Chief Engineer.

To Contractors.

CENTRAL OHIO RAILROAD.

PROPOSALS will be received at the office of the Central Ohio Railroad Company, in Zanesville, until the 15th day of August next, for the Graduation and Masonry of 41 Sections of the Road, extending from a point five miles east of Cambridge, to within about six miles of the Ohio River, near Wheeling, Virginia.

The work upon the greater portion of this Division is very heavy, including several Tunnels and a large proportion of Masonry.

Bids proposing to receive a per centage of payments in the Stock of the Road are desirable; though a favorable consideration will be given to proposals for entire cash payments.

Specifications may be obtained at the Engineers Office in Zanesville, and also in Cambridge and Wheeling, on and after the 21st inst.

ROBERT McLEOD,
Chief Engineer.

July 15th, 1852.

CAR, LOCOMOTIVE, AND TENDER SPRING MANUFACTORY.

PHILADELPHIA, *March* 1, 1852.

We beg leave to present the following Certificates to the consideration of **Railroad Companies and Car Builders,** for the quality of **CAR, LOCOMOTIVE, AND TENDER SPRINGS** manufactured by us.

At the same time we would inform Railroad Companies and Car Builders that we have extended our works, and will be happy to execute any orders for Steel Springs for Cars, Locomotives, or Tenders, of any design or pattern which they may see proper to intrust to us, at the lowest prices, and on terms which will prove satisfactory.

From our long experience as Spring manufacturers, we are enabled to supply Railroad Companies with **Spring Steel,** of superior quality, *converted from Swede Steel Iron.*

The iron being imported direct from Stockholm by ourselves, and Converted and Rolled under our supervision.

Yours respectfully,

JAMES JEFFRIES & SON,
REAR OF GIRARD HOUSE.

Philad'a, Feb. 27, 1852.

MESSRS. JAMES JEFFRIES & SON.

Gentlemen: In reply to your inquiries as to the character of the Springs furnished by you for Locomotive Engines and Tenders, I take pleasure in saying that I have found them, both in material and workmanship, superior to anything else of the kind that ever came under my notice. I have occasionally tried the Springs of other manufacturers, but in testing their elasticity and strength with the apparatus I have for that purpose, I have found none combining the requisites of a good spring, viz., lightness, elasticity, and durability, in so eminent a degree as yours.

I am using them exclusively under the Engines and Tenders of my make, and can safely recommend them to others.

Yours truly, M. W. BALDWIN.

—

Office, Penn'a Rail Road Co.
Philad'a, Feb. 26, 1852.

This is to certify, that James Jeffries & Son manufactured nearly all of the Steel Springs used on the Georgia Rail Road while I had charge of that work, and have also furnished those that have been used on the Pennsylvania Rail Road. The character of their work has always given entire satisfaction, and I cheerfully recommend their Springs to the patronage of Rail Road Companies and Car Builders.

J. EDGAR THOMSON,
Chief Engineer and President Penn'a Rail Road Co.

—

Office, Phil'a, Germantown & Norristown R. R. Co.
February 28, 1852.

This is to certify, that I have used the Steel Springs manufactured by Messrs. Jas. Jeffries and Son, for the Locomotives, Passenger, and Freight Cars of the above Road, during the last 12 years, and have always found them good and efficient Springs, giving general satisfaction. R. FRENCH.

—

Philadelphia, Feb. 23, 1852.

This is to certify, that we have used Car Springs made by James Jeffries & Son, for the period of twelve years, and find them a very superior article, so much so, that we shall always continue to use them. DUTILH, HUMPHREYS & CO.
Proprietors of Union Line of Trans. from Phila to Pittsburg

—

Philadelphia, Feb. 27, 1852.

MESSRS. J. JEFFRIES & SON,

Gentlemen: We have been using your Steel Springs under our Cars for a number of years, they have given entire satisfaction, and have proved themselves superior to any other that we have used. Their good qualities should commend them to any who have need of an article so difficult to obtain perfect. Yours truly, HARRIS & LEECH,
Proprietors of Leech's Trans. Line from Phil'a to Pittsburg.

—

Richmond, Jan. 6, 1852.

MESSRS. JEFFRIES & SON: It affords me pleasure to say, that after some six or seven years' trial of your Springs, I find them superior to any other Springs we have used on our road, and are so well satisfied with their merits as to continue the use of them. I am, very respectfully yours,

THOMAS SHARP,
Superintendent R. P. & P. R. R.

—

Office, R. & P. R. R. Co.
Richmond, Va., Jan. 6, 1852.

TO MR. THOMAS JEFFRIES,

Dear Sir: I take pleasure in stating that the Springs made by the firm of which you are a member, and which I have been using for the last eight years on Locomotives and Tenders, and, also, on Passenger, Freight, and Coal Cars, have given the utmost satisfaction, and I consider them superior to any I have received from other establishments during the above period, and shall still continue to send you our orders for all we may want. Very respectfully yours,

THOMAS DODAMEAD,
Superintendent R. & P. R. R.

—

Superintendent's Office, C. R. R.
Savannah, Ga., Jan. 21, 1852.

This will certify, that Car and Locomotive Springs made by Messrs. James Jeffries & Son, of Philadelphia, have been in use on this road for a number of years, and have given entire satisfaction. W. M. WADLEY,
Superintendent.

Office, Petersburg R. R. Co.
Petersburg, Jan. 8, 1852.

The house of James Jeffries & Son, of Philadelphia, has made us a good many Car and Engine Springs, and I take great pleasure in stating that they have always turned out well, and I believe their work can not be surpassed by any in the country. H. D. BIRD,
President.

—

Office, Sup't T. & M. Power, So. Ca. R. R. Co.
Charleston, Jan. 21, 1852.

This is to certify, that the South Carolina Rail Road Company have for a number of years been using the Steel Springs manufactured by Messrs. J. Jeffries & Son, of Philadelphia, for their Locomotive Engines, and for both Passenger and Freight Cars, and I take pleasure in stating that they have given entire satisfaction, and recommend them to the patronage of all Rail Road Companies requiring such articles.

J. D. PETCH,
Sup't Trans. & Motive Power So. Ca. R. R. Co.

—

Philadelphia, Feb. 27, 1852.

This is to certify, that I have used Springs made by James Jeffries & Son for the period of five years, and consider them equal, if not superior to any others that I have had in use.

JOSEPH S. LEWIS,
Pennsylvania & Ohio Line.

—

Georgia Rail Road,
Augusta, Ga., Jan. 1, 1852

To whom it may concern.—We have used Springs manufactured by Messrs. James Jeffries and Son, for the Locomotives and Cars of our road for the last ten years, and have no hesitation in recommending them as having given general satisfaction

F. C. ARMS,
General Superintendent.

—

Macon & Western Rail Road,
Macon, Ga., Jan. 25, 1852.

MESSRS. J. JEFFRIES & SON,

Gentlemen: This Company has for several years purchased and used, under Cars and Engines, Steel Springs manufactured by you. We have also purchased from other manufacturers and made Springs ourselves.

Yours have given entire satisfaction, and have proved themselves equal, if not superior to any we have used. Their excellent qualities should commend them to all who have need of an article so difficult to obtain in perfection.

Yours, very respectfully, EMERSON FOOTE,
Superintendent.

—

Macon, Ga., January 24, 1852.

MESSRS. JAMES JEFFRIES & SON,

Gentlemen: In reply to your inquiries in reference to Steel Springs, I take pleasure in saying, that I have been in the way of observing Springs in use on Cars and Locomotives, on various Rail Roads, for seventeen years past, more particularly on the Central Rail Road of Georgia for eight years past, and during said seventeen years have been practically acquainted with your make of Springs, and I have no hesitation in saying, that your Springs with open work are the best Steel Springs I have ever used or seen in use.

Yours, respectfully, GEO. W. ADAMS,
Superintendent S. W. R. R. of Georgia.

—

Transpt. Office, W. & A. R. R.
Atlantic, Jan. 31, 1845.

MESSRS. JAMES JEFFRIES & SON,

Gentlemen: This road has used the Springs made by your firm since its first opening, under both Engine and Cars, and they have given entire satisfaction to all.

Very respectfully, WM. D. FULTON,
Superintendent.

—

Montgomery & West Point R. R. Co.
Montgomery, Ala., Feb. 23, 1852.

This may certify, that this Company have been for years using, both under their Engines and Cars, Springs from the manufactory of James Jeffries & Son, of Philadelphia, and are so well satisfied of their superiority that we can confidently recommend them to all companies in need of Springs.

SAMUEL G. JONES,
Engineer and Superintendent.

Norwich Car Manufactory.

FOR SALE.—Will be Sold at Public Auction, on the premises, on Monday, the twenty-third day of August, at 10 o'clock A. M., the entire establishment and property of the Norwich Car Manufactory, consisting of

1 Brick slate roof building, 50 by 150 feet, two stories high, used for setting up cars, cabinet work, &c.

1 Brick slate roof building, 40 by 190 feet, with two wings, 30 by 40 each, one story, used for blacksmith, machine and saw shops.

1 Brick slate roof Engine and Dry House, 30 by 40 feet.

1 Lumber House, 50 by 100 feet.

1 Barn, 18 by 28; 1 Wood Dwelling House, 21 by 28; one and a half stories high.

1 Block of Brick Tenements; several Building Lots.

Together with the Machinery, Tools and Fixtures connected with the same, consisting of a Steam Engine and Boilers; several Planeing and Sawing Machines, Turning Lathes, Boreing, Punching, Morticing, and a variety of other machines, constituting a complete and extensive establishment for the manufacture of Railroad Cars as any in the country, and capable of working one or two hundred hands, and doing a business of $200,000 per annum. It is situated on the Norwich and Worcester Railroad, half a mile from the city of Norwich, at the head of navigation on the River Thames—affording the most desirable facilities for the transportation of Cars and materials, and in the immediate vicinity of various and extensive manufacturing and mechanical establishments.

The whole, with the exception of the vacant lots, is leased on favorable terms for four years from February, 1850. For further information, application may be made to

J. G. W. TRUMBULL, Surviving Trustee.
Norwich, June 26, 1852. 6 w

Railroad Contracts.

THE Mobile and Ohio Railroad Company hereby offer for contract the *Graduation, Masonry* and *Bridging* of 179 miles more of their road, extending from Section 64 of the last *letting* in Wayne Co. to the south line of Pontotoc Co., Miss.—the latter point being 267 miles from Mobile.

The line will be ready for inspection on and after the first of August next. Also, plans, profiles and specifications will be exhibited, proposals received under seal, and contracts made at the following times and places, to wit:

August 15th—At Quitman, for line in Clarke County.
" 25th—At Lauderdale Springs, for line in Lauderdale and Kemper Counties.
September 5th—At Macon, for line in Noxubee County.
" 15th—At Major Gilmore's, 16th section on "Robinson" Road, for line in Lowndes County.
" 25th—At Doct. Gillespie's, on Aberdeen and Houston Road, for line in Monroe County.
" 30th—At Okolona, for line in Chickasaw County.

From July 25th to August 10th, the profiles can be examined, and other information obtained, of C. B. Child, Esq., Resident Engineer, at Macon, Noxubee Co., Miss.

The grading upon 8 miles of this line is heavy, and good car work. About 35 miles middling heavy, and the remaining 136 miles light.

The high and healthy country in which this line of work is situated, and the proposed *letting* of 250 miles more within twelve months, to complete the road to the Ohio and Tennessee rivers, for which subscriptions are now partly taken up, render this work worthy the attention of contractors both north and south. JOHN CHILDE,
Chief Engineer and General Agent,
New York, June 14th, 1852.

TRUSTEE'S SALE

Of the Property, Personal and Real, of the

Maryland Mining Company,

IN ALLEGHANY COUNTY, MARYLAND.

—o—

BY virtue of a decree passed by the Circuit Court for Alleghany county, as a Court of Equity, the undersigned, Trustees, will sell at public sale, at the Eckhart Mines of the Maryland Mining Company, ON THE FIRST DAY OF SEPTEMBER, 1852, At Twelve o'clock, Noon,

All that Valuable Mineral Estate belonging to the Maryland Mining Co., and which said company has been improving for the last seven years, by the expenditure of a vast amount of capital.

The Real Estate consists of two Tracts of Land, called "THE MARYLAND MINING CO.," and "FOUNTAIN INN," located in one body, containing about

1900 Acres of Land,

a large part of which is underlaid by the

GREAT VEIN OF COAL,

14 feet in thickness, likewise by many other veins, varying in thickness from 2 to 4 feet, the whole located in the very heart of the Great Semi-bituminous Coal Fields of Maryland.

ALSO—Two other Lots or Parcels of Land, containing 50 acres each, known as LOTS NOS. 3970 and 3972; these Lots are heavily timbered, and are said to be underlaid by the GREAT VEIN, or 14 feet vein of coal.

Also—Lots Nos. 3401, 3402 and 3403, containing 50 acres each, and adjoining the tract called "*Maryland Mining Company*," and underlaid with the great vein of coal.

Also—One Lot called "HOOK 'IM IN," containing about 80 acres, situated on Braddock's Run, two miles below the village of Eckhart. This land is heavily timbered, with timber suitable for RAILROAD CROSS TIES and other purposes. Braddock's Run affords many excellent sites for Saw or other Mills on this property.

Also—Two Lots of Land on the Canal Basin and Potomac River, containing 19¼ acres of land, being part of the bottom land of the ROSE HILL ESTATE, purchased by the Maryland Mining Company for a COAL DEPOT, and most eligibly situated for the purpose, and particularly described in a deed from Mary Lynn and others to the Maryland Mining Co., dated 19th of January and 2d February 1844, and recorded in Liber H. B. No. 1, folio 140. Each tract being on the slack-water navigation of the Potomac River. The Baltimore and Ohio Railroad passes through the whole length of both tracts.

Also—A Tract or Parcel of Land situated at the junction of Braddock's Run and Wills' Creek, containing about five acres, conveyed to the Maryland Mining Company by Joseph Dilley and Elizabeth his wife, by deed bearing date the 18th of February, 1841, and recorded in Liber A. B. No, C. C. folioes 29, 30, 31 and 32.

The two first Tracts of Land are divided into desirable FARMS, well watered and eligibly situated, and are in a high state of cultivation. The soil is good, and there is an immediate and certain market on the property in supplying the laboring population at the works with the products of the farm.

THE VILLAGE OF ECKHART MINES contains about 100 BUILDINGS of Wood, Brick and Stone, among them 1 Store house, 70 Dwellings, Machine Shop, Locomotive and Stationary Engine Houses, Carpenter Shops, Blacksmith do., Stables, Barns, etc., etc., all new and in the best repair. The village is situated near the centre of the property on the National Road, one and a half miles east of Frostburg; it is immediately convenient to the entrance of the Mines and affords accommodations to a population of 7 or 800 souls.

The Coal Mines are opened to be worked both by horizontal and slope workings, to an extent sufficient to meet the necessities of the largest coal trade. Besides the Eckhart Mines already opened, the Hoffman and other openings upon the property are eligibly situated to furnish vast amounts of coal on a very moderate outlay for improvements being made.

Also—A RAILROAD 9½ miles in length, from the Mines to a junction with the Mt. Savage Railroad by which a continuous line of transportation is provided to the Baltimore and Ohio Railroad Depot, in the town of Cumberland, and by a branch Railroad to the Chesapeake and Ohio canal The road is laid partly on cross ties with a rail weighing 62 lbs. per lineal yard, and partly with an edge rail weighing 38 lbs. per yard supported by string timbers and cross ties, the whole in good repair, and constant transportation passing over it, together with full and ample right of way for the same acquired by condemnation and purchase.

Also—A Brauch Railroad from the Mt. Savage Railroad about one mile in length to the property of the Cumberland Basin company in the town of Cumberland, said road being new and in the best order, laid with a heavy rail of 62 lbs per yard and large oak cross ties. The two roads above mentioned of the aggregate length of 9½ miles costing over $250,000.

Also—A vast amount of personal property, for railroad and mine equipment, too numerous to mention in detail, but consisting in part of the following articles: 2 first class coal burning LOCOMOTIVE ENGINES, (Winans' make) weighing 23 tons each; 1 second class wood and coal burning do., (English make and American rebuild,) and weighing 15 tons; 1 second class, do., do., 12 tons; 30 iron coal cars; 11 Gondola coal cars; 5 coke cars; 14 platform lumber cars; 2 passenger cars; 170 mine cars for the mines; 1 superior turning lathe and other machinery, tools and implements for repairing engines and cars. Also, Horses, Carts, Oxen, Wagon and Farming Utensils, etc., etc., etc.

The revenues of the Railroad growing out of the transportation of coal and miscellaneous freight and from passengers, are more than enough to pay the interest on its cost and keep it in repair.

It is not possible in an advertisement of this kind to give a full description of the property in question, but the object of the undersigned will be effected if they shall be able by this means to call the attention of capitalists to this magnificent property, which contains within itself all the elements necessary to sustain a large mining and mauufacturing business, villages erected for workmen, collieries open ready for working—Railroad and Canal commuuication with tide water, etc.

THE TERMS OF SALE as prescribed by the decree are, one fourth of the purchase money in cash on the day of sale, and the balance in three equal instalments of six twelve and eighteen months, with interest from the day of sale, the purchaser giving his notes or bonds with security to be approved by the Trustees, or the whole purchase money may be paid in cash at the option of the purchaser.

For further information apply to M. O. Davidson. Engineer and Superintendent, at the Mines, who will exhibit the property and explain its capabilities, or the undersigned Trustees,

GEORGE WM. BROWN,
Baltimore.
WILLIAM PRICE,
GEORGE A. PEARRE,
THOMAS J. McKAIG,
Cumberland, Trustees.

Notice is hereby given, pursuant to said decree, to the creditors of the Maryland Mining Company to file their claims with the vouchers thereof in the office of the Clerk of the Circuit Court for Alleghany county, within two months from the day of sale.

GEORGE WM. BROWN,
WILLIAM PRICE,
GE RGE A. PEARRE,
THOMAS J. McKAIG,
Trustees.

July 3, 1852.

Railroad Spikes.

WE would call the attention of Railroad Companies and Contractors to a superior article of Railroad Spikes, of our own manufacture, which for finish. durability and quality of Iron, are not equalled by any in the United States.

THACHER & SEARS,
79 State st., Boston.

N.B.—T. & S. are prepared to take contracts for the delivery of Spikes, at any port of the U. States.

To Contractors.

SEALED PROPOSALS will be received by the undersigned, at the Post Office, in Easton, Pennsylvania, until 7 o'clock A. M., of the 10th August, prox. for the Grading and Masonry of fifteen miles in length of the Belvidere Deleware Railroad, from Milford to Phillipsburg, opposite Easton.

The line will be ready for inspection, and profiles and specifications shown at the offices of the resident Engineers, in Milford and Phillipsburg, on and after the 3rd August.

Good references will be required of bidders unknown to the undersigned.

ASHBEL WELCH, Engineer B. D. R. R.
Lambertville, July 19th, 1852.

Nashua Iron Co.,

NASHUA, NEW HAMPSHIRE.

MANUFACTURERS of Bowling, Pembroke and Lowmoor Locomotive Tires, Engine Frames, Crank and Car Axles, Wrought Iron Shafting of all sizes, Shapes of all descriptions used in Machine shops and upon Railways.

FRANKLIN MONROE, Treasurer.
Messrs. Fullerton & Raymond, Agents, Boston.
" Raymond & Fullerton, " New York
Orders received by the Treasurer at Nashua, N.H. or by the Agents in Boston or New York.

RAIL ROAD CAR FINDINGS,

BRIDGES & BROTHER,

64 Courtlandt Street, N. Y.

WHEELS AND AXLES,

JAWS, BOXES, AND CASTINGS FITTED.

WROUGHT NUTS, BOLTS AND WASHERS,

ENGINE AND CAR SCREW BOLTS, all SIZES,

COACH LAG AND TELEGRAPH SCREWS,

LOCOMOTIVE ENGINE LANTERNS,

From the BEST Manufacturers and at their Prices.

CAR, HAND and SIGNAL LANTERNS.

COTTON DUCK, FOR CAR COVERING,

of any required width to 124 inches.

ENAMELED HEAD LININGS,

The best article made in this country.

PLUSH, and CURLED HAIR.

HAND CARS AND BAGGAGE BARROWS.

PASSENGER, FREIGHT-CAR, AND SWITCH LOCKS, DOOR KNOBS AND BUTTS.

BRASS and IRON WOOD SCREWS.

BRASS AND SILVER PLATED TRIMMINGS

For Windows and Seats.

VARNISH, COACH JAPAN, AND GLUE,

Paints, Varnish and Glue Brushes.

SILVER PLATED AND WHITE METAL LETTERS.

ENGINE and SIGNAL BELLS.

ANTI-FRICTION, OR BABBITT METAL.

PORTABLE FORGES & JACK SCREWS.

HEMP PACKING, AMERICAN, RUSSIA AND ITALIAN.

CONDUCTOR'S BADGES AND BAGGAGE CHECKS.

Iron Bronzed and Brass Hat Hooks.

VENTILATORS AND WHITE METAL RINGS,

And all other Articles pertaining to Cars.

ALBERT BRIDGES. { Late Davenport & Bridges, Car Manufacturers, Cambridgeport, Mass.

ALFRED BRIDGES. { Late Davenport, Bridges & Co., Fitchburg, Mass.

Patent Hose.

DAY & MCMULLEN'S PATENT HOSE.—THE TRIAL made of this incomparable Water Hose, for two years past, has fully demonstrated its superiority. Orders from Railroads, Factories, Water Companies, and others, solicited. Every piece warranted to give satisfaction, by the Patentee and Manufacturer. The following is one of the many certificates, and published, to show the estimation from actual use:—

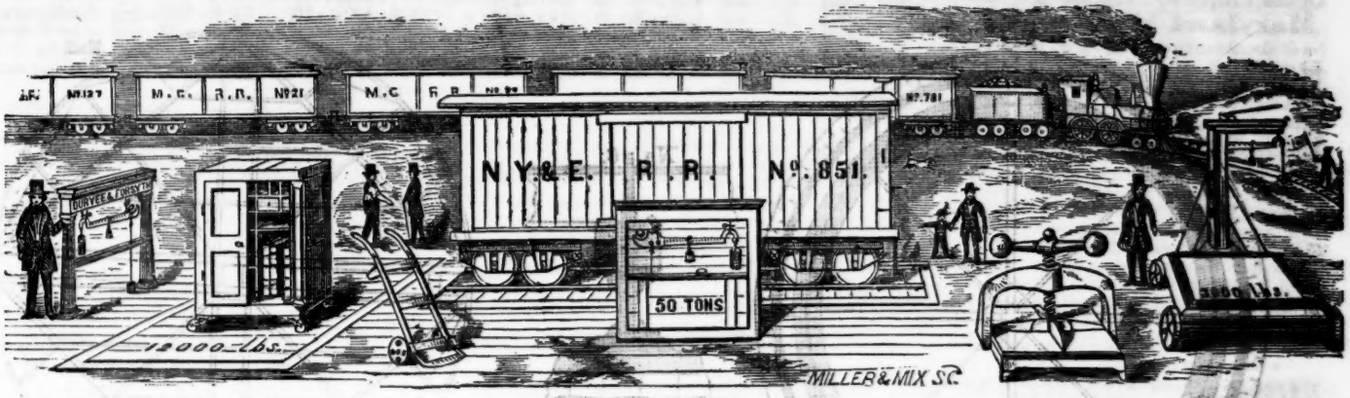
JERSEY CITY, Dec. 17th, 1851.

HORACE H. DAY, 23 Courtlandt st. N. Y.

DEAR SIR - I take great pleasure in stating to you, in answer to your inquiry in regard to the India Rubber Hose furnished by you for the New Jersey Railroad and Transportation Company, that we have found it of the very best description, and to answer much better purpose than either leather or canvass. It is not only more durable, bnt in the end, the most economical. We have now rubber hose on some of our locomotives, that we purchased of you two years ago, which has been in constant use and is still as good as ever, and I have found your four-ply to stand pressure of 150 lbs. to the square inch.

Yours, very respectfully,
JAMES McFARLAND, Superintenden
Motive Power for N. J. R.R. and Trans.

ROCHESTER SCALE WORKS.



DEPOT SCALE, 6 TONS, AND FIRE KING SAFE. **TRACK SCALE, 100,000 LBS.** **RAILROAD MANIFEST PRESS.** **IRON SCALE, 1 1-2 TONS.**

DURYEE & FORSYTH, MANUFACTURERS, ROCHESTER, N. Y.

THE Subscribers are prepared to furnish upon order, RAILROAD SCALES of superior quality at *reduced rates*; Warehouse Trucks: Manifest Presses and Books; also, COVERT'S FIRE KING SAFE.

It has been decided by Scientific Gentlemen, that our Scales are preferable to all others, from the fact of their being made stronger and more substantial, more material used in the construction of the Levers, which renders them much safer and more durable.

OUR MOTTO is, to excel in the articles we manufacture; *therefore the best materials are used. The best model and plans are adopted*, to make them the most desirable for the market.

We wish it distinctly understood, that we use the best CAST STEEL in the bearing edges of our Scales, *although it has been otherwise reported by Messrs. Fairbanks' Agents.* We are ready at all times to test the merits of our Scales with any *honorable* competitor.

A large majority of the Track, Depot and Portable Scales in use by the New York and Erie Railroad Co. were furnished by us. Also, the Michigan Central Railroad is furnished exclusively with our Scales.

The facilities that we have for manufacturing with new and improved machinery, and the central position we occupy for shipping to the different markets, enables us to reduce the price of our Scales 10 to 15 per cent from former prices.

Our Mr Duryee has had over twenty-one years practical experience in manufacturing. The work being under his charge furnishes a sure guaranty of the superiority of our wares. All orders will receive prompt attention. DURYEE & FORSYTH.

GENERAL DEPOTS:

Wm. T. Pinkney, Jr.,	Agent,	166 Pearl st., N.Y.
Raymond, Ward & Co.,	"	Chicago, Ill.
Crawford & Reynolds,	"	Cleveland, Ohio.
Joseph E. Elder,	"	St. Louis, Mo.
Byram, Millier & Shreve,	"	Louisville, Ky.

The following Railroads have been furnished with our Scales and Wares, exclusively or nearly so:

New York and Erie,	Cleveland and Columbus,
New York and Harlem,	Michigan Central,
New York and N. Haven,	Mad River and Lake Erie,
Sandusky, Mansfield and Newark,	Paterson and Hudson R.,
Indianapolis and Bellefontaine,	Cincinnati, Hamilton and Dayton,
Syracuse and Utica,	Buffalo and Rochester,
Columbus and Xenia,	Rochester and Syracuse,
Lexington and Frankfort,	Louisville and Frankfort,
Hillsboro' and Cincinnati,	Chicago and Galena,
Greenville and Miami,	Dayton and Western,
Cayuga and Susquehanna,	Central Ohio,
Rome and Watertown,	Chemung,
Rutland and Washington,	Illinois Coal Company,
Erie and State Line,	Buffalo and State Line,
Rochester, Lockport and Niagara Falls,	Cleveland and Pittsburg,
	Michigan Southern,
	American Express Co.,

The Hon. Canal Commissioners, and Engineers of the Erie Canal Enlargement.

—

Michigan Central R. R. Office,
Detroit, May 10th, 1852.

MESSRS. DURYEE & FORSYTH,
Rochester, N. Y.,

Gentlemen: We have in use upon our road nearly one hundred of your Scales, comprising most of the sizes ordinarily in use upon railroads, many of which have been in service four or five years.

They have kept in adjustment well, retain their sensitiveness, and we regard them as strong, accurate, reliable, and in every respect satisfactory.

Respectfully yours,
J. W. BROOKS, Supt.

—

New York and Erie Railroad,
Supt's Department Gen'l Freight Office,
New York, June 21st, 1852.

To MESSRS. DURYEE & FORSYTH,
Rochester,

Gents: This company have had in use on their road for three years past about fifty of your Railroad Track, Depot and Portable Scales. It affords me much pleasure to assure you that I consider them fully equal to any scale in use on the road, in point of strength, durability, accuracy and finish.

I am very respectfully, your ob't serv't,
SAM. BROWN, Gen'l Freight Ag't.

—

The following Report was made by the Hon. Canal Commissioners of the Erie Canal Enlargement, to the Legislature of the State of New York, Feb. 3d, 1852.

WEIGH LOCK SCALE.

It is but justice to say that the new Weigh Lock at Rochester abundantly sustains the reputation claimed for it by its worthy and scientific builders.

Messrs. Duryee & Forsyth have constructed for this lock, scales of superior power, and may well challenge comparison with any similar work in or out of the State. The mode of adjustment is so easy and simple, that great certainty is secured in determining large or small weights.

Report on Duryee & Forsyth's Weigh Lock Scale, by the Committee of the State Agricultural Society.

The Committee appointed to examine the Weigh Lock Scale in the City of Rochester, manufactured by Messrs. DURYEE & FORSYTH, of said city, have performed the duty assigned them, and report that they regard it as an admirable piece of mechanism, which reflects great credit on the builders. Length of Scale, 80 feet; width, 20 ft.; height, 32 ft.; weight of scale, 75 tons: capacity of weighing 400 tons.

Considering the weight and strength of the materials used, the delicacy and accuracy of this apparatus for weighing loaded canal boats of the largest class, this scale excites universal admiration. One of the committee tested it when under the pressure of a weight of 219 tons 900 lbs., and it clearly indicated a small additional weight within five pounds.

Any description of this Scale would hardly be intelligible without drawings, which the committee have not at command. It has no equal known to the committee. They recommend that a GOLD MEDAL be awarded to DURYEE & FORSYTH, for the manufacture of an article so important to the protection of the revenue of the Erie canal, and to the accurate weighing of an incalculable amount of private property.

C. DEWEY,
DANIEL LEE.

Rochester Sept. 20th, 1851.

—

We have received the Society's FIRST PREMIUMS, DIPLOMAS AND SILVER MEDALS, annually, since 1848, for the best Scales and exhibition. We have also received the DIPLOMAS and SILVER MEDAL of the American Institue, New York, and DIPLOMA of the Mechanics' Fair in Boston. Also, the HIGHEST PREMIUMS IN MONEY and DIPLOMAS or the Provincial Fairs, Canada, and State Fairs in Ohio and Michigan.

$200,000 SEVEN PER CENT CONVERTIBLE BONDS o the NEW-CASTLE and RICHMOND RAILROAD.—The undersigned offer for sale TWO HUNDRED SEVEN PER CENT CONVERTIBLE BONDS for $1,000 each, of the NEW-CASTLE and RICHMOND RAILROAD COMPANY, with Interest Coupons attached, payable semi-annually at the office of the Ohio Life Insurance and Trust Company, in New York. The Bonds are payable at the same place in fifteen years and are convertible into the stock of the company within five years.

These Bonds are secured by a mortgage executed by the Company to George Carlisle, of Cincinnati, and Joseph B. Varnum of New York, Trustees of the road from Richmond in Wayne County, to New-Castle in Henry County, including the superstructure, iron rails, depots, tolls, privileges and franchises of the Company. This mortgage is the FIRST AND ONLY LIEN upon this section of the Road, which is a part of the great Trunk Railroad from Cincinnati to Chicago.

The New-Castle and Richmond Railroad extends from Richmond to Logansport, 103 miles, the whole of which is under contract, and about one thousand hands are now employed on the road.

The total amount of stock subscribed upon the whole road is $509,400. The stock applicable to the construction of the road from Richmond to New Castle is $250,900.

This railroad passes through the most fertile, populous and highly improved part of Ohio and Indiana, and it must become the great route for freight and travel between Cincinnati and Chicago and the Northwest.

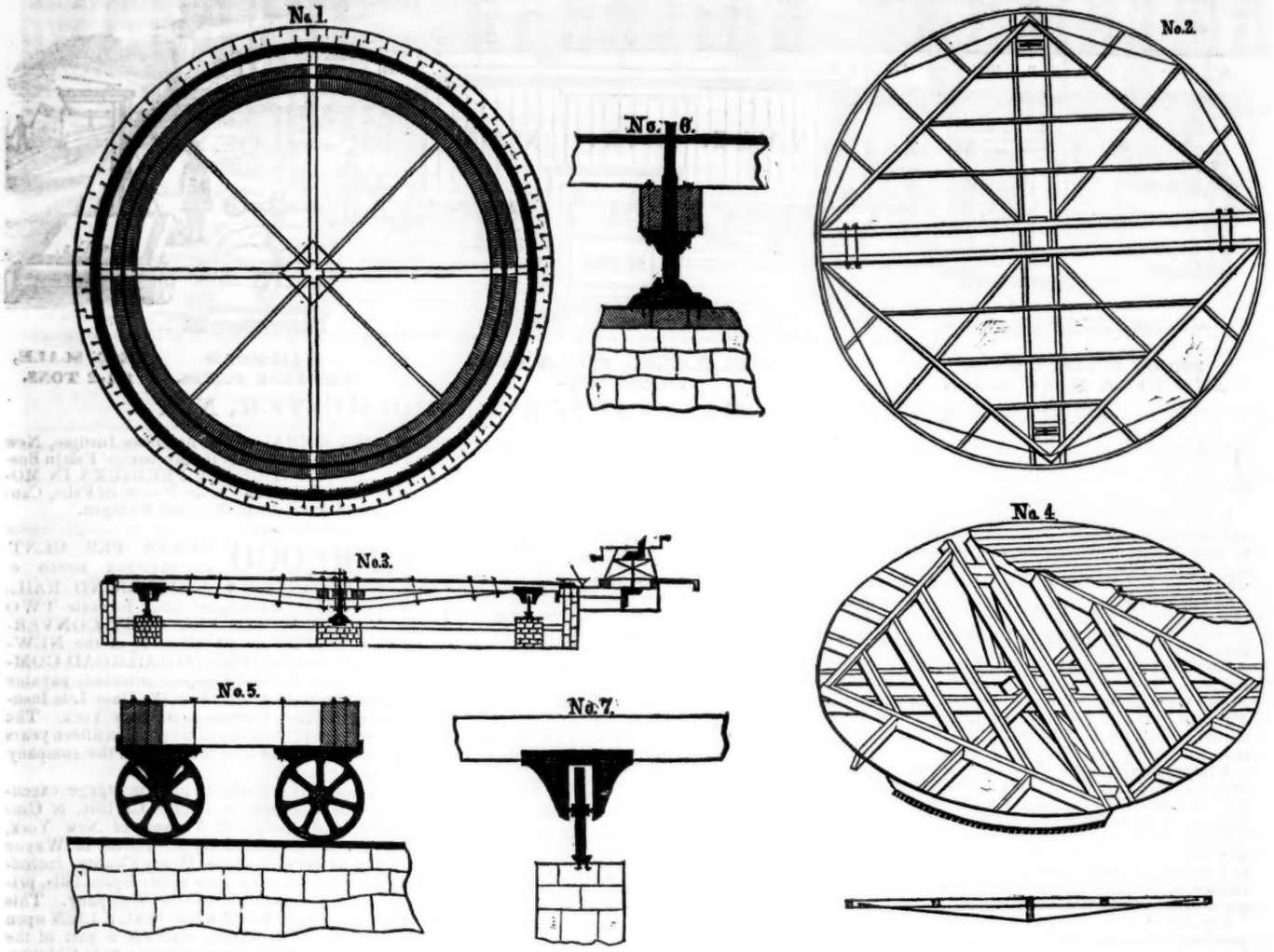
The local business alone would be sufficient to make the road profitable. The counties of Indiana through which it runs produce annually more than two millions of bushels of wheat, five millions of bushels of corn, one hundred and fifty thousand hogs, and fifteen thousand cattle, a large part of which must be transported to market on this road.

The iron rails for more than fifty miles of the road have been purchased. Ten miles of the road, from Richmond to Washington, will be completed and in operation in November next, which will make a continuous railroad of about 70 miles from Cincinnati, by way of Hamilton, Eaton and Richmond.

The holders of the bonds will have for ther security the obligations of the company, with subscriptions of stock to the amount of more than half a million of dollars, and a mortgage upon the road from Richmond to New Castle, with the iron rails, superstructure, tolls and franchises of the company.

CARPENTER & VERMILYE, 44 Wall-st.
CAMMANN WHITEHOUSE & Co., 56 Wall-st.

CARHART'S IMPROVED TURNTABLE.



THE Patentee of the improved Turntable solicits an examination of its merits by Railroad Companies. It has been in use on the Hudson River Railroad during the last three years, since which, some improvements have been made upon it. The Patentee is now putting down the fifth table on the Ohio and Pennsylvania Railroad, where these tables have been in use for one year past. The *chief merits* of this Turntable are that it is capable of being turned by two men, with an engine and tender upon it, weighing thirty-five tons, in the space of two minutes. Its cost, including all material, the best kind of workmanship in wood, iron and masonry—except excavating the pit and laying the track—is only *thirteen hundred dollars*, and all repairs, except the ordinary wear and tear, will be guarantied for the sum of five dollars a year, for three years.

Figure 1 of the above cut represents the foundation, consisting of the bank and track walls; centre pier, cross-timber for bolting the step of pivot to. The track, which is spiked and leaded into the coping of the wall, the latter being composed of stone 2½ feet square. The Bank wall is 5 feet high and 20 inches thick, with cut and hammered dressed stone coping laid in lime and sand. Fig. 2 shows the carcass framing. Fig. 3 gives a side view of one main truss, with the mode of gearing, including rack and pinion. Fig. 4 gives a perspective view of rim and segments. Fig. 5 an end view of the main trucks with pedestals and wheels. Fig. 6 screw for pivot, 6 inches in diameter, running to the top of the table, with the lever for adjustment. Fig. 7 shows the cross section of the track wall, wheel and pedestal.

For further particulars please address the subscriber through WM. W. PRATT, Jersey City, N. J.

June 19th. D. H. CARHART.

New York and Canada.

The attention of Merchants, Traders and travellers, is directed to the facilities now afforded for the conveyance of freight and passengers direct from this city to Montreal.

The Champlain and St. Lawrence Railroad Company having opened their road from Rouse's Point to South Montreal, the only link before wanting to connect New York with Montreal by a continuous railroad, has been supplied.

Passengers leaving New York in the morning, sleep comfortably on the way, and arrive at Montreal at half-past four the following afternoon, reducing the travelling time to little more than twenty hours

Freights are carried with the greatest care and dispatch, at greatly reduced rates.

After the opening of navigation, passengers will be conveyed from one city to the other by day light.

New York, Feb. 13, 1852.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

To Telegraph Companies.
TELEGRAPH WIRE.

ORDERS taken for all numbers of best quality of English Telegraph Wire. Samples at the office of the Subscribers. JRE, CARMER & CO.,

6m*14 75 Broad st., New York.

Spikes, Spikes, Spikes.

ANY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK, Troy, N. Y.

or, MOORE HARDAWAY, Richmond, Va.

March 6. 1850.

Dudley B. Fuller & Co.,
IRON COMMISSION MERCHANTS,
No. 139 GREENWICH STREET,
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REFINED Juniata Charcoal Billet Iron for Wire.
Do. for Bridging, of great strength.
Mat Rock, Boiler and Flue Iron, rolled to pattern.
Elba, Wheel Iron of great strength and superior chilling properties. Elba Forge Iron, American Shot Iron, Cut Nails, Spikes and Brads, Nail and Spike rods, Railroad Spikes of superior quality, Wrought Chair plates of any pattern, punched or plain.

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